

Connecticut's Energy Efficiency & Conservation Programs

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Legislative Program Review
& Investigations Committee

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Introduction

Purpose of Study

The committee undertook this study in May 2008 to assess what progress Connecticut has made in achieving two of the eight broad goals of the state's energy policy, which was established in statute in 1978. The two broad goals under review are to:

- *assist citizens and businesses in implementing measures to reduce energy consumption and costs; and*
- *ensure that low-income households can meet essential energy needs.*

Rationale of Goal One

The reason for Connecticut to implement measures to reduce demand and consumption of energy, especially at peak demand times, is that it provides many benefits to all state residents and businesses. Those benefits include:¹

- More sustainable and stable rates of growth in energy demand;
- Reduced risk of huge price increases and price volatility;
- Lower total energy bills for all consumers;
- Increased energy reliability, including reduced risks of blackouts and shortages that can have drastic impacts on the state's well-being and economy
- Less need to site and pay for potentially controversial, expensive, and environmentally harmful energy supply facilities;
- Cuts in emissions of air pollutants and greenhouse gases
- Balances and diversifies the manner of a state's "energy portfolio"
- Direct and indirect economic development benefits including: developing a "green workforce"; more reduction in energy consumption and costs makes a more competitive business environment, even to the extent of keeping some businesses open that otherwise may close or relocate.

¹ Many of the benefits are cited by the American Council for Energy-Efficient Economy, and noted in the Connecticut Energy Efficiency Fund 2008 Energy Excellence Plan, May 2008, p.8.

Rationale of Goal Two

The reasons for ensuring that assistance is provided to low-income residents to meet their energy needs are fairly apparent:

- Many of the state's low-income residents are also vulnerable in some other way – e.g., elderly and or disabled, and heat and light become as basic a need as food or medicine;
- As energy costs rise, bills for light and heat take a greater portion of income and more and more residents have a harder time paying those bills, the need for financial assistance becomes more acute.
- Since this is considered a societal responsibility federal and (to a lesser extent) state dollars support these program. Also, because low-income residents also pay electric bills and consequently the surcharges on those bills, financial support also comes from electric companies as well as gas companies, through their rates.

Measuring results. It is fairly easy to lay out why the state should implement energy efficiency and conservation programs and assist low-income households with energy expenses, but it is much more difficult to assess whether the state's efforts have been successful. One measure of success in attaining the energy efficiency goal is that Connecticut has been recognized as a national leader in delivering energy efficiency programs by the American Council for an Energy-Efficient Economy (ACEEE).² The ACEEE ranks states based on their progress in eight energy efficiency policy categories including spending on programs sponsored by utility ratepayers, tax incentives, building energy codes, and whether the state has an energy policy and standards. Connecticut ranked first, along with California and Vermont, in the ACEEE 2006 scorecard.

But other yardsticks of success that are closer to consumers may be more difficult to assess. A major factor that stymies efforts on both fronts -- improving energy efficiency and helping lower-income groups – is largely beyond the control of state or even national policy makers to control: that is the cost of energy. One of the goals of efficiency programs is of course to save money, but as much as consumers may try to implement efficiency measures, if energy costs increase so do their utility and heating bills, frustrating expectations to see “pocketbook” results.

The state's efforts to assist low-income households with energy expenses face similar challenges. As energy costs rise faster than incomes, especially for lower and middle income groups, more households fall into the groups needing assistance. The amount of public monies available has not increased to match that demand, hence more people face an “affordability gap” and the less that gap is able to be filled with assistance. The General Assembly, recognizing the

² The ACEEE is a nonprofit organization established in 1980, relies on funding and support from a variety of public and private sources, advances energy efficiency as a means of promoting economic prosperity, energy security, and environmental protection.

severity of the energy affordability problem, in August 2008 allocated surplus 2008 funds to various programs aimed at improving energy efficiency and assisting low- and moderate-income households pay their energy bills.

Another obstacle to measuring energy efficiency is that the world is dynamic and constantly changing. Modifications and upgrades in the home and the workplace can impact energy use profoundly. New technologies and their widespread use, like flat screen televisions or personal computers in every home and on every office desk, are prime examples. So, while it may appear that energy use keeps increasing despite implementing efficiency measures, it is difficult to estimate what use would have been had the measures not been implemented.

Some aspects of meeting the two energy policy goals under this review may be well beyond the control of state government and other entities involved. Others, such as ensuring the efforts are coordinated and state residents receive the most value for the dollars spent are certainly within the purview of policymakers and program administrators and therefore should be measured, evaluated, and necessary improvements made.

This briefing report is only a first phase of examining these two goals and how well they are being met. The report for the most part is limited to describing what programs are in place now – both to implement energy efficiency measures and assist low income residents, and to a much lesser extent, how well they are working. The issues of coordination and gaps in programs will be developed further for the final report along with proposals for improving any deficiencies identified.

Methods. The program review committee staff has relied on many sources in developing the briefing report. In addition to state statutes, staff relied on energy documents produced by a variety of both federal and state government agencies and nonprofit policy organizations. Many interviews were held with staff from several state agencies, including: the Office of Policy and Management; Office of the Attorney General; Office of Consumer Counsel; and the Departments of Public Utility Control, Economic and Community Development, Environmental Protection, and Social Services.

Interviews were also conducted with staff from the utilities, and a number of board members and staff from the Energy Conservation and Management Board, the Clean Energy Fund, the Connecticut Energy Advisory Board, and the Low Income Energy Advisory Board. A number of these boards' meetings were also observed. Committee staff also met with representatives of the Institute for Sustainable Energy, Operation Fuel, and the Connecticut Association for Community Action Agencies (CAFCA).

Report organization. The briefing report contains five sections. The first section describes energy consumption and cost trends, both nationally and in Connecticut, and places them in context with population and the economy, as well as their impact on consumers, especially lower-income groups.

The second section discusses why energy efficiency policies and programs are important and what governments, especially at the state level, are doing to spur implementation of energy efficiency measures. It also summarizes the components of a model action plan for energy

efficiency, based on the *National Action Plan for Energy Efficiency*, developed by more than 50 leaders from government, business, and utilities, and sponsored by the federal Department of Energy and the Environmental Protection Agency. The section also describes what elements are generally in place in Connecticut.

The last three sections provide a comprehensive description of all programs currently in place to implement energy efficiency and assist low-income customers with their energy costs and in weatherizing their homes to conserve energy. The sections are organized primarily by program funding source: Section III includes those that are funded by electric or gas ratepayers, while Section IV discusses those funded with state bonds, General Fund, or special dedicated funding. Section V describes those programs aimed at assisting low-income residents.

The description of each program highlights key features, including: origination and purpose; eligibility requirements and benefit levels; program administration and oversight; funding and activity levels; and reported monitoring and evaluation results, if any. The income eligibility levels are often based on a certain percent of federal poverty level; those levels included in the report are for the 2007 to 2008 period since activity levels are based on guidelines in effect during that period. The income levels for the 2008 to 2009 period are contained in Appendix G.

The scope of the study also called for a status report of the many measures required (P.A. 07-242), a comprehensive energy act passed in 2007. That is provided in Appendix A.

Section I

Overview of Connecticut and Energy Use

This section discusses overall energy consumption trends both nationally and in Connecticut. The section also describes what the costs of energy have been and their impact on the economy in this state and nationwide. While national figures are based on recent 2007 data, comparative information between Connecticut and other states is somewhat older (2005). Finally, the consumption and costs of different types of energy and the increasing burden those costs are placing on Connecticut households, especially those of lower income, are analyzed.

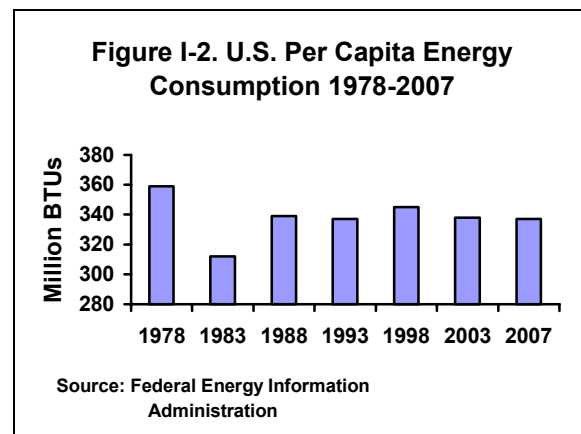
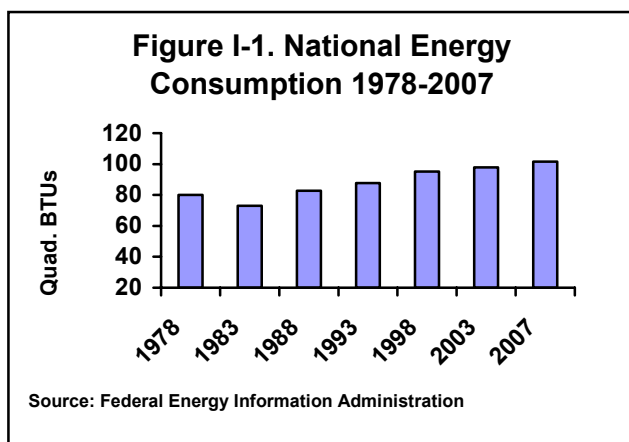
To help put energy use in perspective, and assist in understanding this section, Table I-1 provides some terms of measurement for different types of energy and overall consumption. Appendix B also provides a glossary of commonly used energy terms.

Table I-1. Energy Terms for Measurement	
Number of Households in Connecticut in CL&P and UI territory	1.4 million
Average Energy Consumption per Household	
Electricity	700 kWh per month – 8400 kWh per year
Oil	800-900 gallons per year
Natural Gas	1,030 ccf per year
Energy Measurements	
Electricity	kWh (kilowatt hours) – measures the amount of electricity consumed over time: 1,000 kWh = 1 MWh 1,000 MWh = 1 GWh KW – measures the amount of constant electricity needed 1,000 KW = 1 MW
Oil	Gallons – measures the amount of oil consumed in gallons
Natural Gas	Ccf- measures the amount of gas consumed in <i>hundreds</i> of cubic feet Mcf – thousands of cubic feet MMcf – millions of cubic feet
Overall Energy – BTU	BTU – British Thermal Units measures energy consumption and allows for consumption comparisons among fuels that are measured in different units Quadrillion BTUs - for total population Millions of BTUs - for individuals

Nationally, over the past 30 years overall consumption of energy (including transportation uses) has increased about 27 percent from about 80 quadrillion BTUs in 1978 to 101.6 in 2007, as shown in Figure I-1. National consumption declined more than 10 percent

between 1978 and 1983, as a result of a national recession in the early 1980s, a reduction in overseas oil production and higher oil prices. However, the impact was temporary, and when prices dropped again national consumption resumed, although somewhat more moderately.

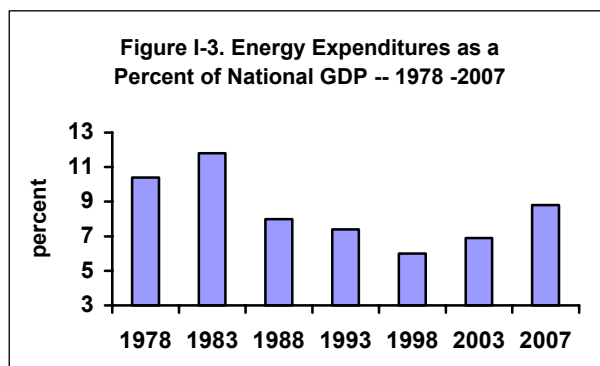
Measured on a per-person basis, energy consumption has remained fairly stable during the same time period, as shown in Figure I-2. The per-person use was at its peak in 1978 at 359 million BTUs, before dropping substantially in the early 1980s, and then grew moderately. More recent per capita consumption has actually declined, from 345 million BTUs in 1998 to 337 million BTUs in 2007.



Much of the national increase in energy use is due to economic growth. Data show that gross domestic product (GDP) significantly outpaced growth in energy consumption. Nationally, between 1997 and 2007, the GDP increased by almost 67 percent in actual dollars, while national energy consumption grew by about 7 percent.

A newer measure that attempts to gauge intensity of energy consumption to support the economy calculates energy use for every dollar the economy produces. Thus, if energy consumption is measured in 1,000 BTUs for every real dollar of GDP, or the energy it takes to produce every dollar of economic growth, the decline in consumption is also dramatic. Thus, for every dollar of GDP in 1997 it took 10.89 (1,000 BTUs) to produce that, and only 8.78 (1,000 BTUs) in 2007, a reduction of almost 20 percent.

While the energy being consumed to drive the economy may be lessening, the cost of energy as a percent of GDP is increasing after being stable for a time. As Figure I-3 shows, energy expenditures are not taking as much of our national gross product as they were during the later 1970s and early 1980s, when the energy costs accounted for almost 12 percent of GDP, that percentage has been increasing and is again approaching 10 percent.



Connecticut's Energy Consumption

It is difficult to compare trends nationally with Connecticut using the same time period as above, because the most recent state data is for 2005. Consumption data for the period between 1995 and 2005 show that the state's energy consumption grew from 778.2 trillion BTUs to 900.2 trillion BTUs, an increase of about 15.6 percent. For the same period – 1995-2005 -- national consumption increased about 10 percent.

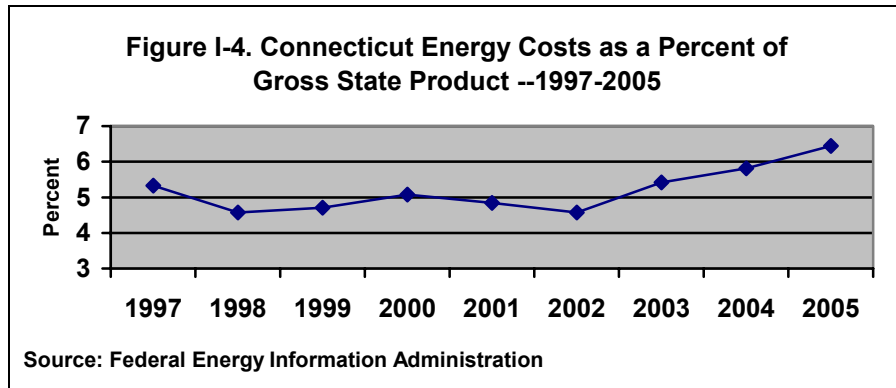
Compared to other states, Connecticut's overall consumption is fairly low. In total energy consumption (all sources) Connecticut ranked 33 of 50 states and D.C. in 2005. Comparing Connecticut to other states by end-use sector, the residential and the commercial sector (e.g., office buildings, retail) both ranked 28. Connecticut ranked 44 in consumption by the industrial (manufacturing) sector, reflecting that Connecticut's economy is not heavily manufacturing-based.

Per capita consumption in Connecticut also is comparatively low. The state ranked 44 in total energy consumed per capita in 2005, an increase from 2001, when Connecticut ranked 47. Connecticut's 2005 per capita consumption of 258.2 million BTUs is about 24 percent less than the national average per capita consumption of 339.2 million BTUs, indicating that Connecticut residents are relatively low consumers of energy.

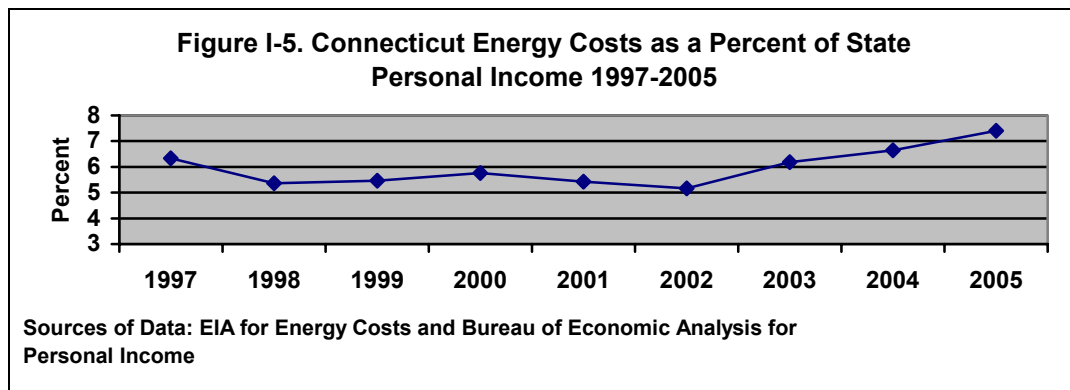
Connecticut's Energy Costs

Connecticut has not been a high energy-consuming state, but Connecticut has high energy prices. In 2005, Connecticut had the third-highest prices in the nation per million BTUs. At \$19.40 per million BTUs, Connecticut was behind only Hawaii and D.C., and was about 20 percent higher than the national average price of \$15.66. However, Connecticut ranks in the middle (26) of all the states when comparing expenditures per person. Connecticut expended \$3,571 per person on energy in 2005, only 1.2 percent above the national average of \$3,525. Because Connecticut residents pay a lot for energy they may be more cautious energy consumers, hence their overall expenditures do not differ much from the national average.

The two graphs below show the growth in energy expenditures as a measure of the state economy. Figure I-4 illustrates the growth in Connecticut's overall energy expenditures as a percent of gross state product. Between 1997 and 2005, growth in that measure has gone from less than 5 percent in the late 1990s to almost 7 percent in 2005, an almost 40 percent increase. While actual data are not available beyond 2005, additional and dramatic increases in energy costs since then make it likely that energy expenses are consuming a much greater share of the state's economy.



Energy expenses as a share of the state's total personal income have also grown over the same period – from a low of about 5 percent in 2002 to more than 7 percent in 2005 (Figure I-5). Again, if more recent data were available, this ratio would likely be much higher since energy prices have increased substantially since 2005. Further, state personal income is a gross measure of the overall income of all state residents, but the impact energy costs have on individuals and households can be much higher than the 7 percent, depending on their income. This impact will be discussed later in this section.



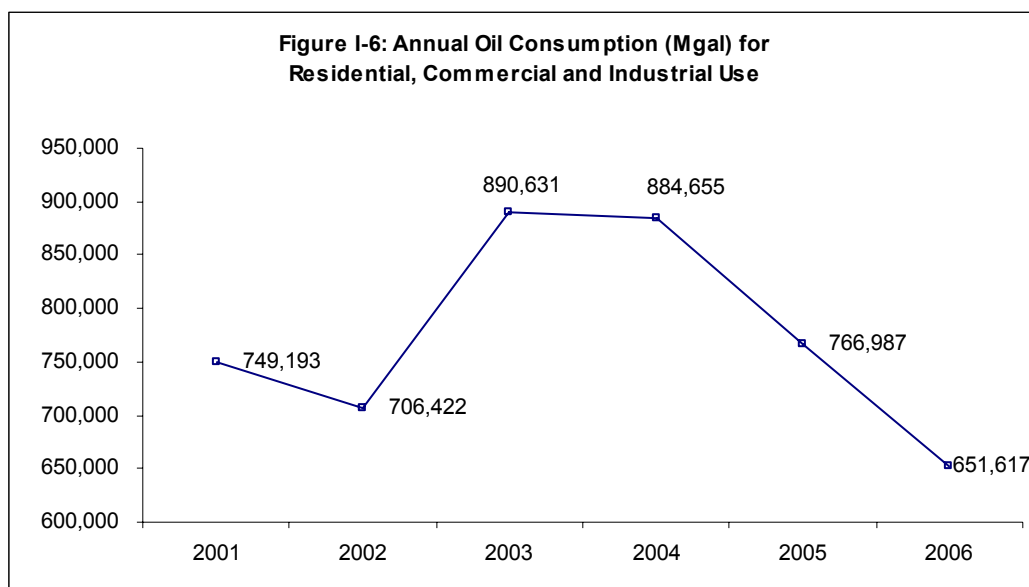
Statewide Consumption and Cost by Type of Energy

Just as Connecticut does not rank high in overall consumption of energy, it also does not rank high in consumption of any one type of energy. However, because of the state's geographic location and lack of fossil fuels, it pays some of the highest prices for all types of energy. A brief description of consumption and price of energy in Connecticut follows.

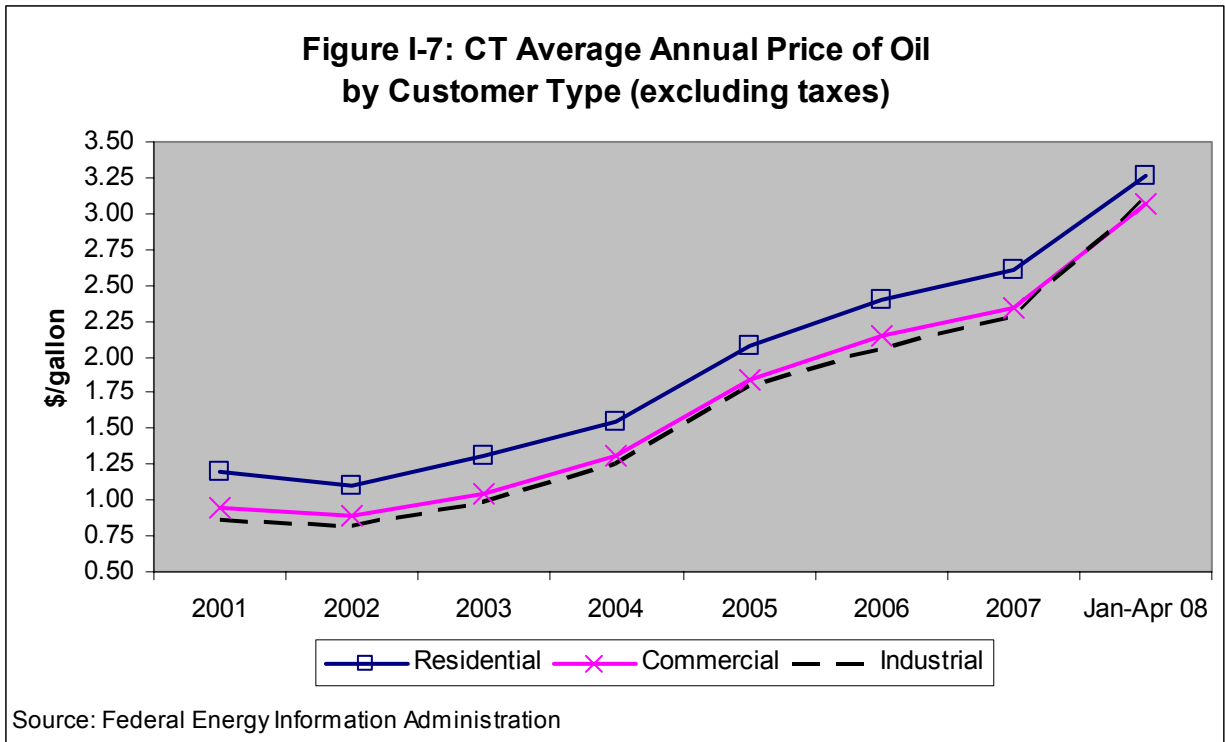
Oil. In 2005, Connecticut ranked 29th of the 50 states and D.C. for overall consumption of oil. Within Connecticut, residential customers are the largest consumers of oil, consuming over 500 million gallons of oil in 2006 (see Table I-2).

Table I-2: Annual Oil Consumption (Mgal) in Connecticut by Sector						
	2001	2002	2003	2004	2005	2006
Residential	579,489	565,684	682,429	713,161	626,032	525,807
Commercial	144,988	124,644	155,903	148,599	126,262	111,141
Industrial	24,716	16,094	52,299	22,895	14,693	14,669
Total	749,193	706,422	890,631	884,655	766,987	651,617
Source: Federal Energy Information Administration						

Figure I-6 graphically depicts the total oil consumption for the state since 2001. As the figure demonstrates, total consumption reached a high in 2003 and has been on a decline ever since.

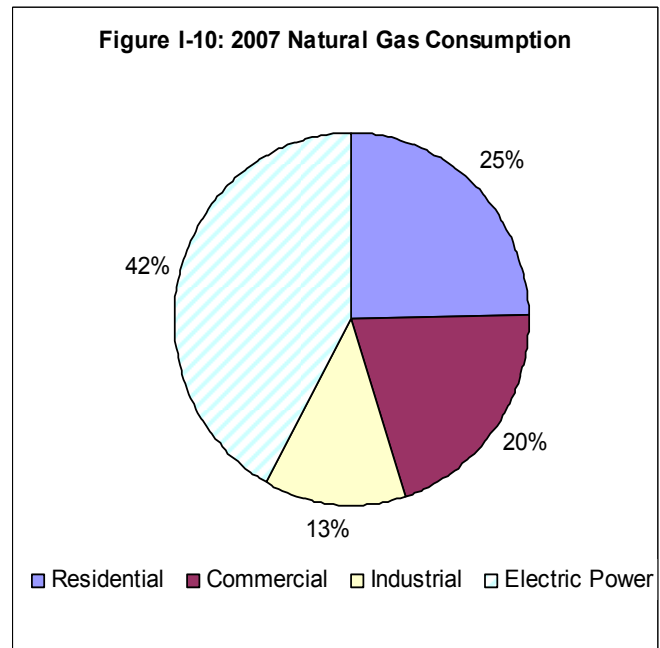
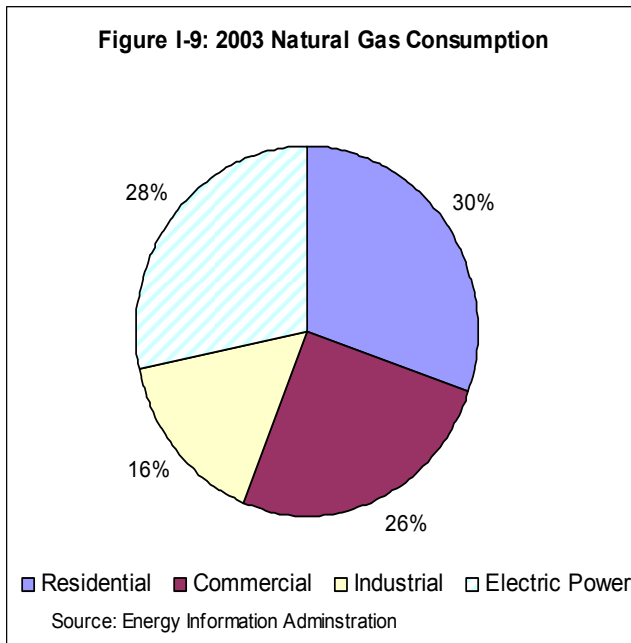
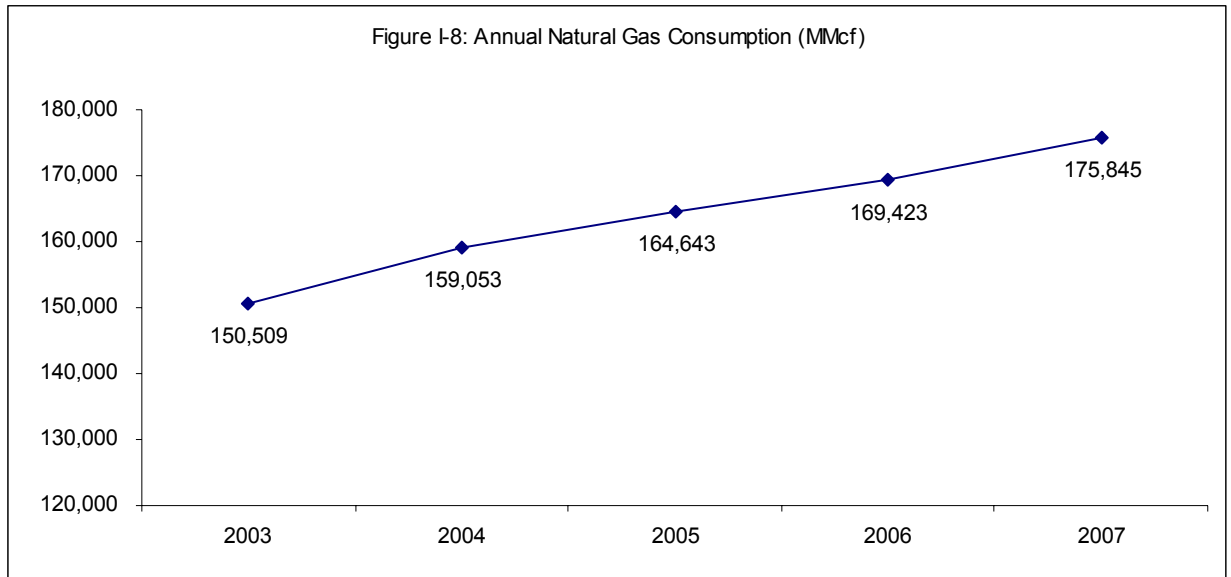


Oil prices for all users, residential, commercial, and industrial, generally have steadily increased since 2001 (Figure I-7). Residential customers have experienced a 172 percent increase in prices since 2001, reaching an average high of \$3.27/gallon for the first four months in 2008. Commercial and industrial customers have seen larger percentage increases since 2001, 226 percent and 257 percent respectively, although a lower average price per gallon than residential customers.

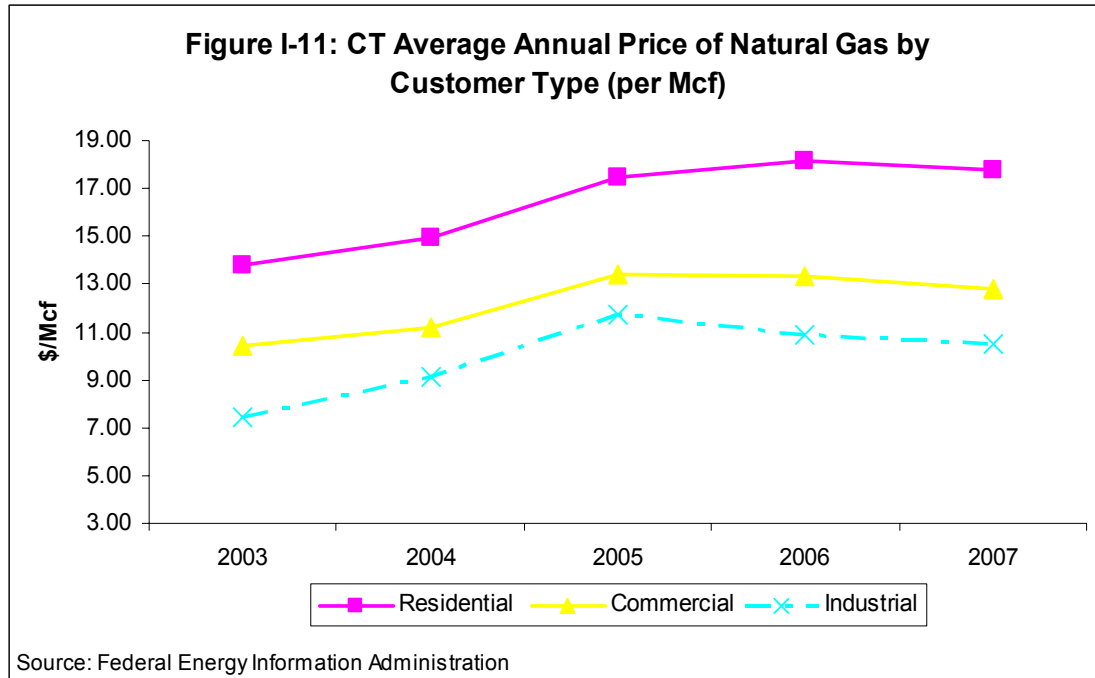


Natural gas. Connecticut is not a large consumer of natural gas; it ranks 36th among the 50 states and D.C. in 2005 (the latest year all state rankings were developed). Further, much of the natural gas consumed in the state in 2007 – about 42 percent - was used for the production of electricity. The remainder of the state’s natural gas consumption was split among residential (25 percent), commercial (20 percent), and industrial (13 percent) customers.

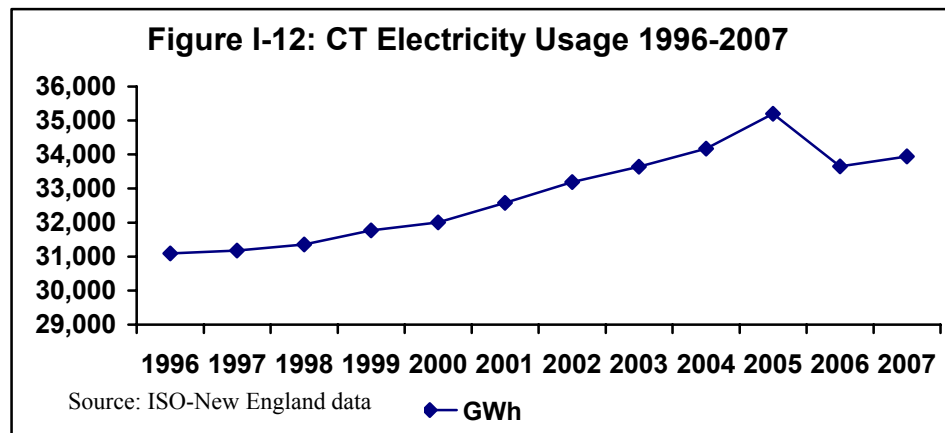
Overall consumption for all customer types has seen a steady increase since 2003 as shown in Figure I-8. The electric industry’s shift from reliance on coal to natural gas has increased its overall share. Over the past four years, consumption of natural gas to produce electricity has increased by one and half times, going from 28 percent to 42 percent (Figures I-9 and I-10). In contrast, commercial, industrial, and residential customers have all decreased their consumption.



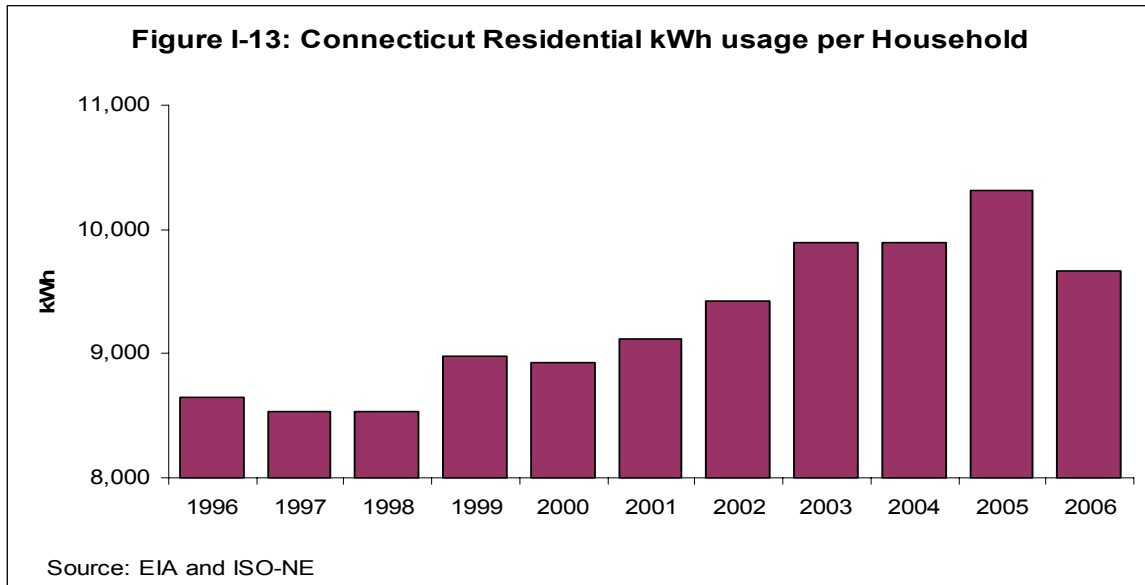
Natural gas prices have also been on the rise since 2003, although since 2005 they appear to have leveled off (Figure I-11). Similarly to oil prices, residential customers pay the highest price for natural gas among the three customer types.



Electricity. Consumption of electricity has steadily increased since 1996 (see Figure I-12). However, in 2006 there was a precipitous drop, which leveled out in 2007. Most likely the drop was a result of the large increase in electricity prices around that time.



Following the pattern of overall electricity usage, residential consumers have also steadily increased electricity consumption (see Figure I-13).



Consumption trends in electricity vary by sector as shown in Table I-3. While the number of households has grown by less than 7 percent from 1996 to 2006, residential use has grown by almost 11 percent, indicating the real growth has been in usage per household. Further, in the industrial sector, there has actually been a decline in manufacturing (as measured by employment) of more than 20 percent, while industrial electricity usage has declined by almost half that, indicating usage has outpaced the economic growth in that sector. Only in the commercial non-manufacturing sector has the sector growth outstripped electric consumption growth.

**Table I-3: Connecticut Electric Demand:
Components of Growth**

	Percent Growth
	1996 to 2006
Sum-of-companies Forecasts	
Residential GWh Sales	17.9%
Households	6.7%
Usage	11.2%
Commercial GWh Sales	18.3%
Non-manufacturing Employment	10.8%
Usage	7.5%
Industrial GWh Sales	(11.5%)
Manufacturing Employment	(21.3%)
Usage	9.8%

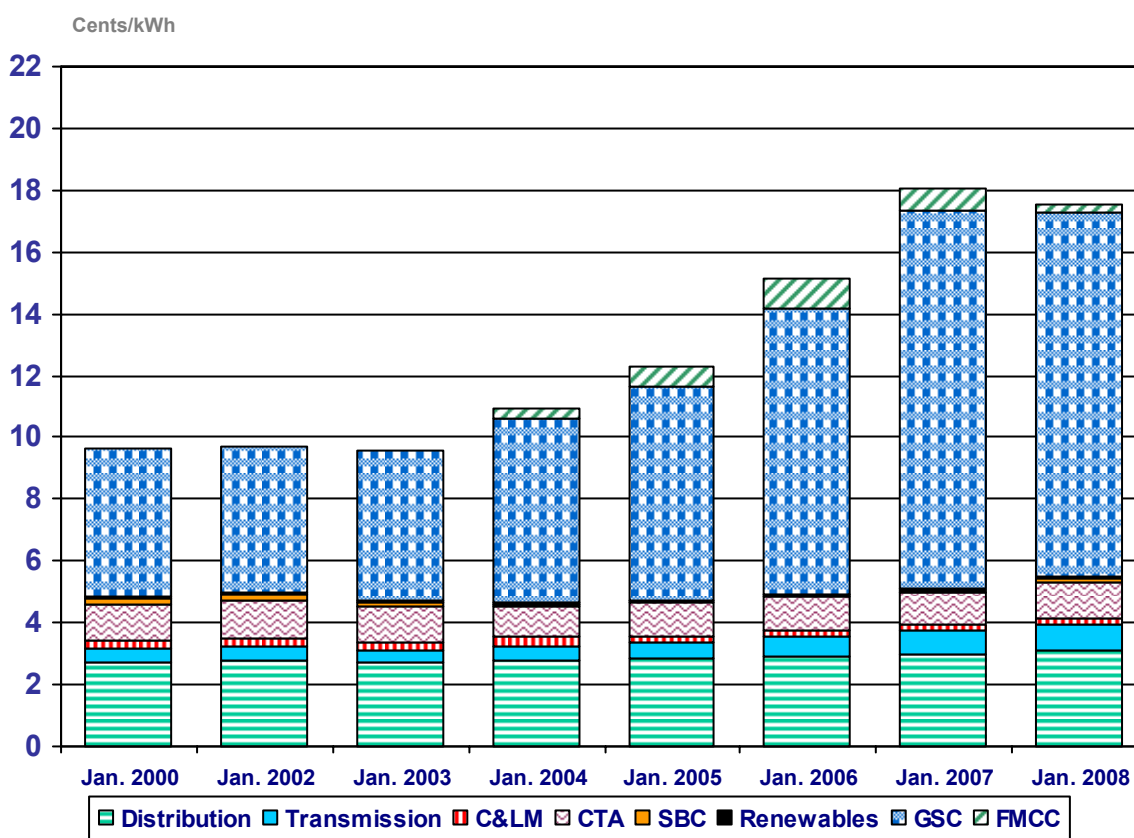
Source: "An Analysis of Demand for Electricity in Connecticut prepared for the ECMB," January 28, 2008.

In overall electricity sales in 2006, Connecticut ranked 35th among the 50 states and D.C. However, within New England, Connecticut residents and commercial customers consume the most kWh per month.³ In Connecticut, these two customers types together account for 83 percent of total sales, with the remainder being sales to the industrial and transportation sectors.

Connecticut has the second highest average residential retail electricity prices out of the 50 states and D.C., according to the most recent rankings from the Federal Energy Information Agency. At about 18 cents per kWh, Connecticut trails only Hawaii in what its residential electric customers pay.

The primary driver of the cost of electricity is the generation service charge as shown by Figure I-14. Since 2005, this charge has comprised about two-thirds of the cost of electricity.

Figure I-14: CL&P & UI Average Electric Rates, 2000 - 2008

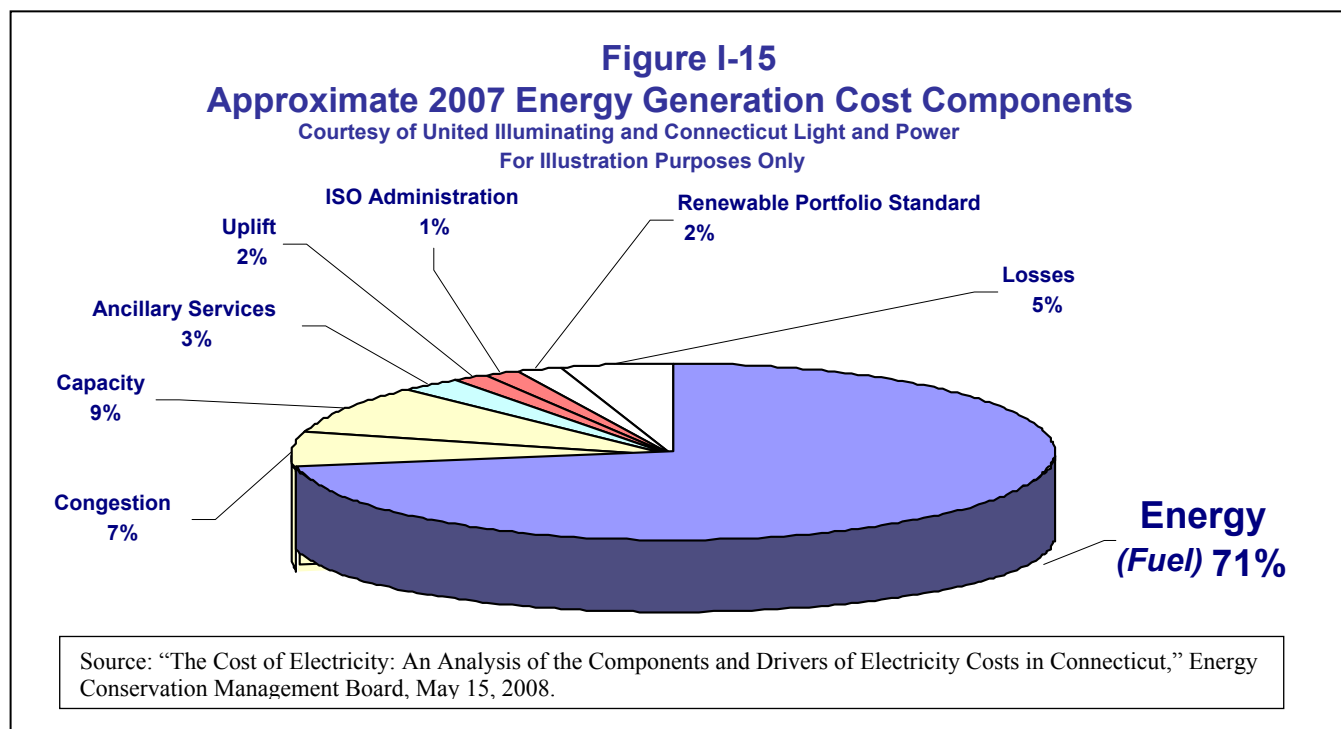


[FMCC=Federally Mandated Congestion Charges; GSC=Generation Service Charge; SBC=Systems Benefits Charge; CTA= Competitive Transition Assessment; C&LM=Conservation & Load Management]

Source: "The Cost of Electricity: An Analysis of the Components and Drivers of Electricity Costs in Connecticut," ECMB, May 15, 2008.

³ <http://www.eia.doe.gov/cneaf/electricity/esr/table5.html> (viewed on Energy Information Administration)

Figure I-15 illustrates the components of that generation charge, of which more than 70 percent pays for fuel.



Residential Energy Consumption and Prices

Home heating. Households in Connecticut primarily use oil (50 percent) as the primary source of home heating fuel followed by natural gas (30 percent) and electric heat (15 percent). The remainder of households uses another fuel source. This compares to the average U.S. household where 51 percent heat with natural gas; 9 percent, oil; 30 percent, electric heat; 7 percent, liquefied petroleum gases; and the remainder, other sources.

In Connecticut, the primary source of heat varies based on whether the residence is owner or renter occupied (Table I-4).

Table I-4: Primary Source of Heating for Residential Housing in CT			
House Heating Fuel	All Housing Units	Owner Occupied	Renter-Occupied
Oil	50.3%	59.4%	29.4%
Natural gas	30.0%	26.1%	39.0%
Electricity	14.9%	9.3%	27.7%
Other	4.8%	5.2%	3.9%
Source: 2006 U.S. Census Bureau American Community Survey			

The price of home heating oil rose at a relatively stable rate through the late 90s and early part of this decade but recent increases have been dramatic. Between March 2007 and August 2008, the price of oil jumped 69 percent (Table I-5).

Table I-5: Average Monthly Residential Oil Retail Price (includes taxes)⁴ per gallon						
	March	April	May	June	July	August
2007	\$2.44	\$2.50	\$2.50	\$2.54	\$2.61	\$2.56
2008	\$3.76	\$3.97	\$4.29	\$4.60	\$4.65	\$4.13
% change	54%	59%	72%	81%	78%	61%
Source: Office of Policy and Management						

If the prices continue in this trend, the cost of energy for households for the 2008-09 heating season will steeply increase from past years. The 2008-09 heating bill for an average household that uses oil will cost between \$3,304 and \$3,717, using the most recent price of oil, compared with an average annual cost of \$2,035 for the 2006-07 heating season.⁵ As shown in Table I-6, natural gas customers will also experience an increase for the 2008-09 heating season, with an estimated bill of \$2,393.⁶

Table I-6: CT Average Annual Household Heating Bill				
Heating Fuel Source	2006-07	2007-08	2008-09 (projected)	% Change
Oil ⁷	\$2,035	\$3,058	\$ 3,511	73%
Natural Gas	\$1,597	\$1,693	\$2,393	50%
Source: PRI calculations				

Electricity. A Connecticut household uses about 700 kWh (kilowatt hours) of electricity per month⁸. There are two major electric investor-owned utilities in the state that supply electricity for residential customers – Connecticut Light & Power (CL&P) and United Illuminating (UI). Table I-7 shows the most recent data on rates for residential customers.

Table I-7: Standard Residential Rates for CL&P and UI		
Standard Residential Rate	CL&P	UI
Monthly Service Charge	\$15.00 per month	\$14.33 per month
Rate per kWh	17.651 ¢	24.5716 ¢ (summer) 20.3207 ¢ (winter)
Source: CL&P and UI websites (viewed data)		

⁴ OPM, "Connecticut Heating Oil Regional Retail Price."

⁵ PRI calculation using OPM's average monthly retail price for the 2007 heating season (Jan-April) and EIA average of 800-900 gallons of oil consumed per household.

⁶ PRI calculation: Average usage of 1,030 ccf using June 2008 EIA price of \$23.23 per thousand ccf (most recent price available)

⁷ PRI calculation: average between a high and low usage customer

⁸ EIA (<http://www.eia.doe.gov/cneaf/electricity/esr/table5.html>)

Using the above published rates, this means that the average CL&P customer can expect to pay approximately \$140 a month, or \$1,660 for the year. For the same average monthly usage of 700 kWh, the standard residential UI customer pays approximately \$156 a month, or \$1,856 for the year.

Summary of findings. About half of Connecticut households – those that heat with home heating oil – will be paying approximately \$3,500 in the 2008-2009 season to heat their homes. For about half the households in Connecticut, then, heating their homes will cost approximately 2 times the cost of their electricity bills. For households earning 60 percent of the state median income of \$55,323,⁹ their total energy bill if they heat with oil will be approximately \$5,160 representing about 10 percent of annual income.

Affordability gap. As energy prices increase, the financial pressure on low-income households rises. The affordability level for home energy bills - including heating, cooling, electricity, and hot water - is considered to be 6 percent of household income. Last year, the average difference between actual and affordable energy bills for households at or below 185%¹⁰ of the federal poverty level (FPL) reached \$2,929 per household.¹¹ This placed Connecticut 48th among the 50 states and D.C. with one of the highest average affordability gaps.

The federal low income home energy assistance program (LIHEAP) assists households with the heating and cooling portion of their energy bills. In 2002, LIHEAP covered 29.9 percent of the affordability gap. However, in 2007, LIHEAP covered only about 12.8 percent of the energy affordability gap, as Figure I-16 illustrates.

⁹ FY2008 Federal Poverty Guidelines for a household of four

¹⁰ For 2008, 185% of FPL is equivalent to an annual income of \$39,220 for a family of four

¹¹ “Home Energy Affordability Gap: Connecticut Legislative Districts,” Fisher, Sheehan, and Colton, November 2007.

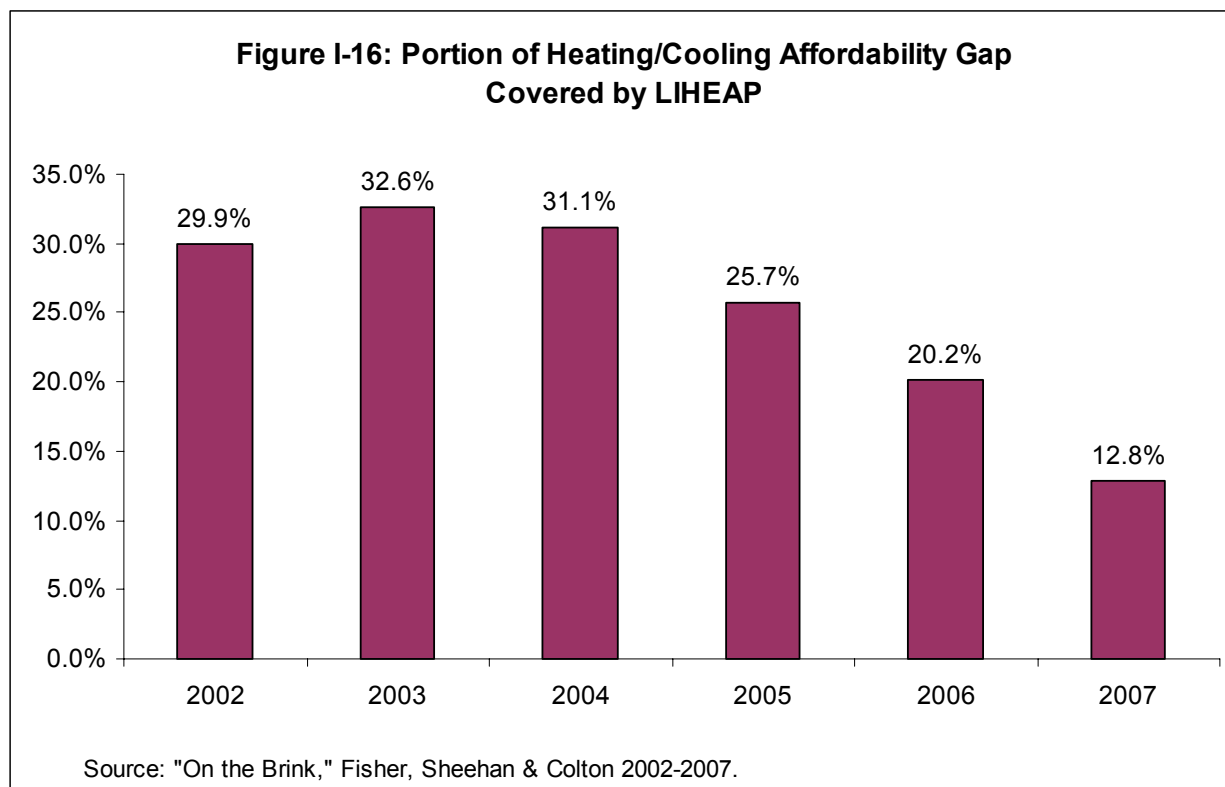


Table I-8 illustrates the impact the home energy burden – the gap between affordability and income-- has on low-income households by income level. Additionally the table illustrates how many households are affected by the gap in coverage for home heating and cooling needs.

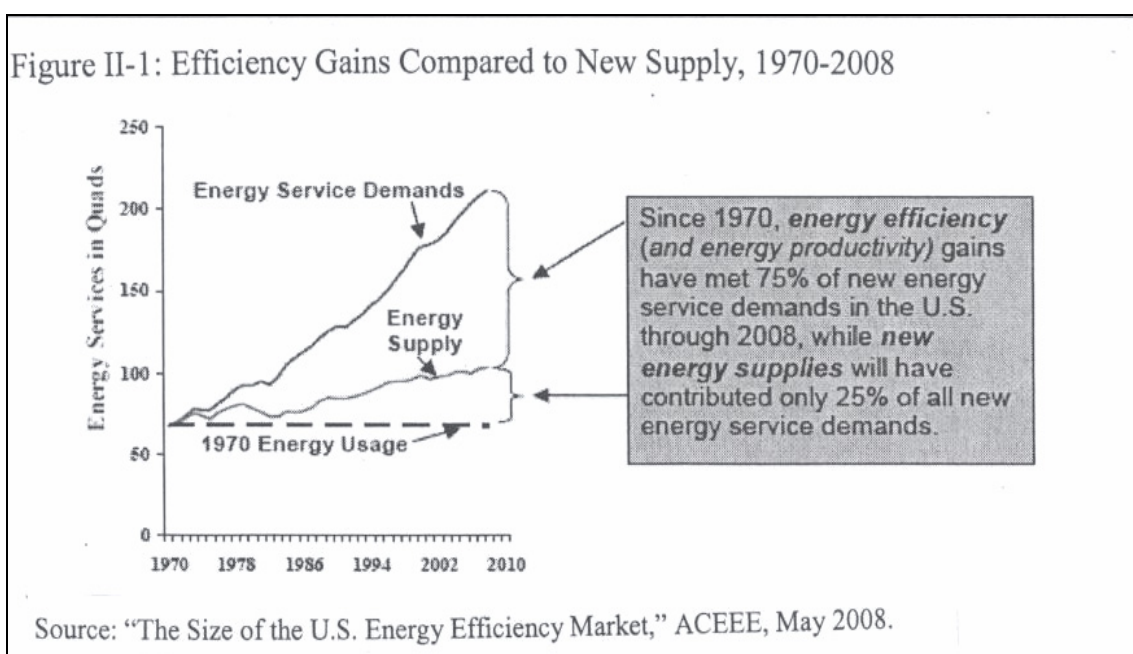
Table I-8: Connecticut Home Energy Burden, 2007			
Poverty Level	Home Energy Burden	No. of Households	Annual Income for Household of Four
Below 50%	100%	50,164	<\$10,660
50-74%	40%	24,418	Up to \$15,688
75-99%	29%	27,954	Up to \$15,900
100-124%	22%	32,976	Up to \$26,288
125-149%	18%	37,286	Up to \$31,588
150-185%	15%	56,028	Up to \$39,220
Source: "On the Brink: 2007," Fisher, Sheehan & Colton.			

Section II

Benefits of Energy Efficiency Programs

While energy efficiency practices have been around for quite some time, only recently have they been recognized as the most economical and cleanest way to address energy needs. As shown in the previous section, nationwide energy consumption, as measured per dollar of economic output or gross domestic product, has been reduced to half of what it was in 1970. In other words, each unit of energy consumed today provides substantially more energy services than the same unit did in 1970. While it is difficult to state precisely how much of that is due to energy efficiency, a recent study by the American Council for an Energy Efficient Economy (ACEEE) indicates that about 75 percent is due to more efficient energy measures and use and 25 percent is due to increased energy supply.

The ACEEE, a well-respected broad-based research and policy organization in the area of energy efficiency, analyzed national energy consumption data and forecasts and arrived at the finding illustrated in Figure II-1 below. The graph shows increasing energy demands have been met more with energy efficiency measures than with new generation or supply. The graph also shows that the reliance on efficiency to meet energy needs is decidedly growing.

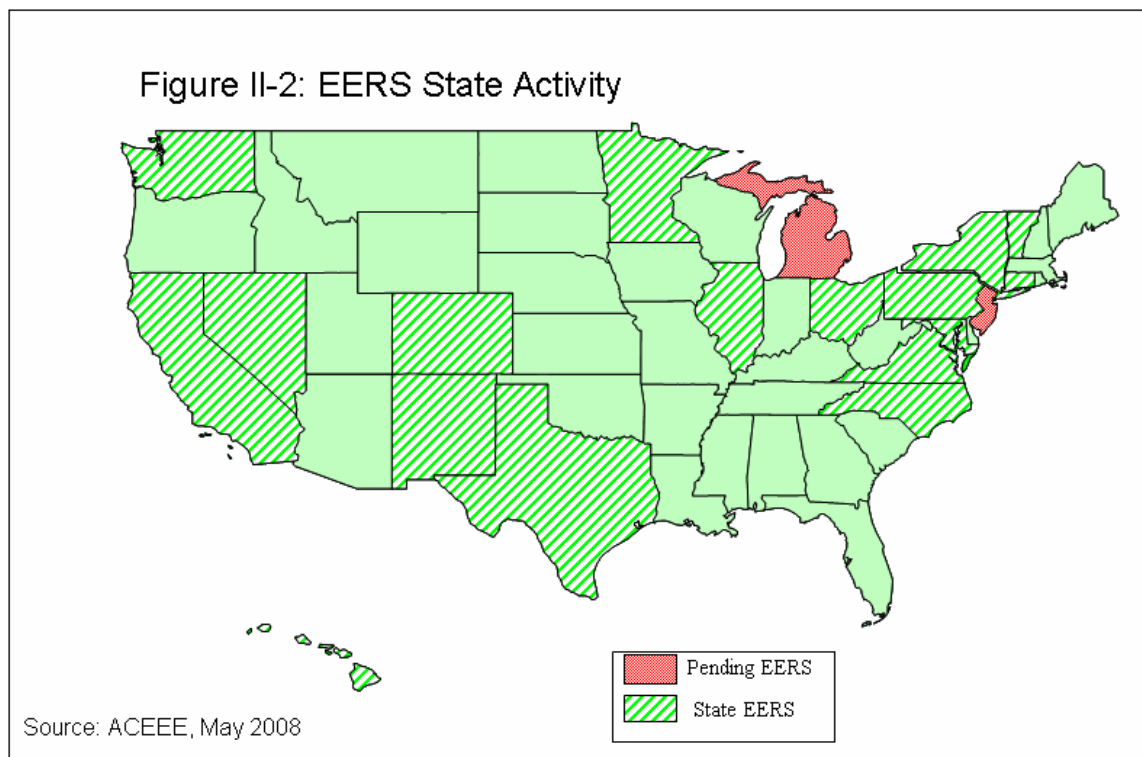


Unlike new power supply sources, energy efficiency is not as visible, and thus has not received the attention, credit, or investment it deserves as the best way to meet future energy needs while reducing environmental impacts. However, there appears to be a recognizable societal shift – by policymakers, business leaders, and ordinary consumers in attitudes -- that appears likely to accelerate the influence energy efficiency and conservation has in transforming lifestyles and the economy.

Several major influences are cited as contributing to this sea change in attitude:

- rising and more volatile energy prices;
- issues around delivering capacity for conventional energy supplies (e.g., transmission lines);
- increased urgency in responding to climate change concerns;
- growing consumer and investor concerns about energy industry responsibility; and
- rapid pace of technological advances.

While there has been no adoption of a broad national policy to reduce energy consumption or promote energy efficiency requirements, 19 states, including Connecticut, have begun to impose energy efficiency resource standards (EERS) including renewable standards as state policy. The map below in Figure II-2 illustrates the states that have adopted, or are pending adoption of efficiency energy resource standards as of May 2008.



While Connecticut is considered to have an energy efficiency standard, that goal really revolves around its renewable portfolio standard (RPS) more than a mandated reduction in overall energy use resulting from energy efficiency, as some other states have. The RPS requirements set percentage amounts of what electricity need to be supplied (or purchased) through alternative sources rather than through traditional sources. As a way for utilities to meet the state's RPS requirements Connecticut uses its energy portfolio, which includes energy

efficiency programs. Beginning in 2006, Connecticut has set an ambitious phased-in target of meeting 10 percent of its electricity generation needs by 2010 through Class I or II renewable resources, with at least 7 percent coming from Class I. Class I includes solar, wind, landfill gas, fuel cells, wave, or tidal power, while Class II resources include generation from facilities like trash-to-energy, biomass, or certain hydroelectric facilities.

Starting in 2007, the state's electric utilities are additionally required to procure at least 1 percent of sales – increasing to 4 percent in 2010 – from Class III resources, which include combined heat and power systems installed after January 1, 2006; waste heat recovery systems installed after January 1, 2007; and energy efficiency and conservation programs begun after January 1, 2006.

Regardless of the standard established, the adoption of such goals sets the stage for a state's support of policies and programs that make the mandated standard achievable. Almost all states considered leaders in implementing energy efficiency programs have set fairly ambitious energy efficiency and/or renewable energy standards. Indeed, it is not a coincidence that states that receive high grades on the ACEEE energy efficient scorecard also have standards for efficiency or renewable energy use in place. The types of programs aimed at promoting such policies are discussed in this section.

Types of Programs

Typically, the way to achieve a policy goal is either to mandate that certain measures take place or to offer incentives so that residents and businesses will adopt them by choice. In many cases, a state may choose to use both methods. Examples of mandated programs aimed at energy conservation and efficiency include:

- reduction of greenhouse gases through cap and trade agreements;
- reduction in use of energy (typically some percentage by a future date) through efficiency programs; and
- use of Leadership in Energy and Environmental Design (LEED) standards for all new building construction.¹²

In addition, or alternatively, promoting energy efficiency as a policy goal can be achieved through offering incentives. Most often these are financial incentives, from tax credits or exemptions, to rebates, and to grants and loans.

Federal incentives. The federal government offers several incentives, including:

- two programs aimed at individual taxpayers who install alternative energy measures such as solar heating or purchase items (e.g., insulation or windows) to make their homes more energy efficient;

¹² LEED standards are a suite of measures developed by the U.S. Green Building Code Committee that incorporate environmentally sustainable goals for a building.

- exemption from both corporate and personal income tax of any utility-granted subsidies issued to businesses or individuals for installing efficient or renewable energy measures, and a tax credit for home builders who build energy efficient homes;
- grants and loan programs, including a program known as energy efficient mortgages where loans by private lenders to individual homeowners of up to \$8,000 can be added onto their mortgages and are guaranteed by the Federal Housing Administration. Another program offers loans and grants to local and state governments and commercial establishments for implementing energy efficiency measures or installing renewable energy technologies; and
- federal block grants to states to provide weatherization services to low-income persons who qualify. Federal production incentives are also available to state or local governments or non-profits to produce and sell electricity generated through renewable sources.

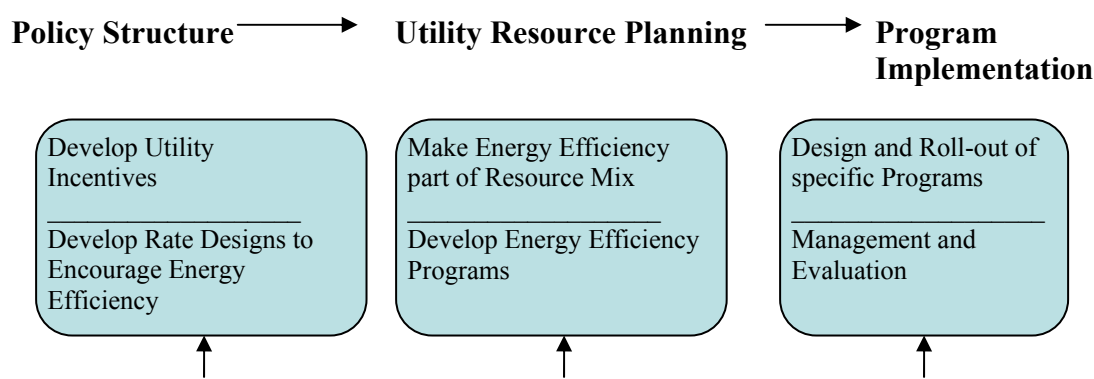
Some of the federal incentive programs expired at the end of 2007 while others are due to expire at the end of 2008, unless reauthorized by Congress.

State Initiatives

Absent a national energy efficiency policy or standard, many states have exercised their authority to establish a variety of measures aimed at encouraging energy efficiency. The *National Action Plan for Energy Efficiency* issued in July 2006 suggests the following multi-pronged approach for states to use in developing meaningful energy efficiency structures.

According to the national plan, each major component of the proposed energy efficiency infrastructure illustrated in Figure II-3 is important in ensuring good results, but requires many steps to implement. Often, there are obstacles and barriers to implementation, many times tied to financial constraints.

Figure II-3. Elements of Energy Efficiency Policy and Program Design



Source: National Action Plan for Energy Efficiency, July 2006

Connecticut

Connecticut has made strides to put into practice many of the elements illustrated. Some of the components were put in place as the result of electric restructuring in 1998 and thus have been part of the energy efficiency design for some time. Others have been required only since 2007, when P.A. 07-242 established a whole host of energy efficiency measures, some of which have not yet been implemented. (See Appendix A for a status of all P.A. 07-242 requirements).

In addition to the RPS mandate discussed earlier, the legislature has also mandated that Connecticut, through the Department of Environmental Protection participate in a regional cap and trade agreement to reduce the state's greenhouse gases. Under the program, electric power providers who cut their emissions by more than the targeted amount can sell their excess credits to non-compliant plants through an auction. Funds raised through the auction can be used to strengthen energy conservation and efficiency programs. Regulations for Connecticut's participation in the program were approved in July, and the first auction is scheduled for September 25, 2008, so at this point it is difficult to predict how much funding the trades will provide.

Rate design and structure. Because Connecticut consumers have the second-highest electric rates per kWh in the nation, there is already a financial incentive to use less electricity. But there are many ways that rates can be structured to encourage energy efficiency, at either the utility or consumer level. For example, consumers can be charged a different rate depending on how much they use, so that if they consume beyond a certain number of kWh per month, the rate goes up.

Another way that rates can be structured is to charge a lower rate when customers use electricity during periods of low demand, also known as time-of-use rates. In the past, these rates were optional for customers, and peak rates were charged from 7 a.m. to 11 p.m. weekdays. Beginning in 2008 and 2009, the peak rate hours are now charged from 12 noon to 8 p.m., and

mandatory time-of-use rates are being phased in for customers of both utilities according to a schedule set by DPUC, with the largest-usage customers being mandated first. CL&P's residential customers were slated to begin mandatory time-of-use rates in 2009, but because of the costs of changing the metering system, DPUC has issued a delay and ordered CL&P to first conduct a pilot to determine which types of meters should be used.

Surcharge. While technically not part of the ratemaking structure, a surcharge levied on customer electric bills is the most common way of funding energy efficiency programs. Typically, the surcharges expressed as a mill per kWh of usage. Twenty states and D.C. are using this method with varying surcharge levels. Table II-1 shows the states that have implemented this type of surcharge and what that mill/kWh is. Since electric restructuring in 1998, Connecticut has statutorily required a surcharge of 3 mills per kilowatt hour for energy efficiency programs and another 1 mill per kWh for renewable energy projects. For a residential electric customer using 700 kWh a month, 3 mills equates to about \$2.10, and the 1 mill equates to about \$.70.

Table II-1. State Electric Surcharges for Energy Efficiency and Renewable Energy Programs		
State	Energy Efficiency (EE) surcharge Mill/kWh	Renewable energy surcharge Mill/kWh
Arizona	0.57	0.73
California	3.21	0.76
Connecticut	3.00	1.00
Delaware	0	0.178
D.C.	0.38	0.02
Illinois	0.03	0.04
Maine	1.5	0
Maryland	1 (per settlement w/2 largest utilities)	
Massachusetts	2.50	.50
Michigan	0.07	Included in EE
Montana	0.84	0.17
Nevada	0.82	0.18
New Hampshire	1.75	2.91
New Jersey	1.22	0.41
New Mexico	0.10	0
New York	0.83 (& \$100 million supported by unregulated utilities)	0.25 (in research and development)
Ohio	0.11	0.72
Oregon	1.48	0.38
Pennsylvania	0.04 (used for research and development)	0.05
Rhode Island	2.30	(in EE)
Vermont	2.9	
Source of Data: American Council for an Energy-Efficient Economy, Summary of Public Benefit Programs, 2007		

In Connecticut, the 3 mill energy efficiency surcharge annually raises approximately \$90 million and the 1 mill renewable energy surcharge accounts for another \$30 million annually. Since 2003, however, only about two-thirds of those funds have been going to support the energy efficiency and clean energy funds; the other one-third has been going to pay for bonds issued

when the state was in a fiscal crisis in 2003. (Restoration to full funding for both funds was required in 2007 legislation, which will be discussed in Section III).

In addition to electric rate surcharges that go directly to fund energy efficiency programs, other rate structure mechanisms can offer more direct incentives for reducing energy use and implementing efficiency measures -- from outright rebates based on a percentage reduction to increasing rates during peak demand hours (or conversely lowering them for usage during times of low demand).

In 2007, Connecticut's electric utilities implemented a statutorily required direct rebate program for residential customers who demonstrated lower usage during the summer of 2007 compared to the same months in 2006. About \$24 million was returned to about 371,000 customers in the form of rebates on their bills. However, measuring how much reduction is due to actual conservation and efficiency, or how much is due to cooler weather, for example, is always difficult. The Department of Public Utility Control issued a report on the program citing this issue as well as the costs and recommended that better methods of evaluating impact be in place before implementing another such rebate program.

Planning

The second action area outlined in the national plan (Figure III-3 above) is that a state should engage in planning efforts including resource planning. P.A. 07-242 required that the utilities and the Connecticut Energy Advisory Board develop an integrated resources plan (IRP) for the state. Also known as the procurement plan, it is to include energy efficiency as part of how energy will be procured. The plan was submitted to DPUC in September 2008 for its approval. The plan reinforces the requirement that electric companies, by 2010, procure at least 4 percent of their generation from Class III resources, which includes energy efficiency programs.

Energy efficiency measures are also now being recognized and valued as part of meeting the future electric needs of the New England region. The independent system operator (ISO), which controls the electric supply to meet demand for the region (thus preventing blackouts), also plans for the future capacity requirements in New England. In February 2008, ISO-New England began paying electric utilities for demand side resources, including energy efficiency measures, just as suppliers of electricity are paid. This new source of revenue, resulting from the first ISO-New England forward capacity market auction, will support the expansion of energy efficiency programs in New England.

In addition to the integrated resource plan discussed above, Connecticut has a number of plans around energy and energy efficiency, including: the Conservation and Load Management Fund (or CEEF) developed by the utilities and the Energy Conservation Management Board; and the Comprehensive Clean Energy Fund Plan. All of these plans, along with accompanying budgets, must be submitted and approved by the Department of Public Utility Control, Connecticut's utility regulatory agency. Connecticut has a number of other plans that impact energy efficiency, including the Climate Change Action Plan and the Clean Energy Vision Plan, which do not require DPUC approval, but which do establish energy goals for the state.

Program Implementation

The literature on energy efficiency finds one of the clearest benefits of implementing efficiency and conservation programs is that they cost less than increasing the supply. The cost of increasing electric supply by building new generation plants or adding transmission lines is generally double the cost of efficiency programs. The benefits are even more pronounced in regions of the country like New England where generation costs are very high. As Section III discusses, Connecticut's ratepayer-funded energy efficiency programs are calculated to result in \$4 in lifetime electric savings for every \$1 spent.

While benefits are realized, that must be communicated to customers so they will participate. In addition to communicating benefits and demonstrating results, other major factors in program design and implementation should ensure the following:

- provide programs for all key customer groups;
- align goals with funding;
- make it easy for customers to participate;
- measure and assess programs, ensuring that new technologies are adopted; and
- communicate and publicize results.

Types of programs offered. Every state in the country provides some financial incentives aimed at energy efficiency and/or renewable energy.¹³ An incentives summary is contained below, and a full listing is in Appendix C.

- Twenty-one states allow credits on their personal income tax for renewable energy installation, and a fewer number (11) allow credits on personal income tax for implementing energy efficiency measures. Connecticut does neither.
- Twenty-three states, not including Connecticut, offer programs with credits (32 in total) from the state corporate income tax for renewable energy. Eight states issue corporate income tax credits to businesses for energy efficiency. Connecticut does not.
- Twenty-eight states, including Connecticut, exempt the purchase of renewable energy products from sales tax. Eleven states, including Connecticut, have sales tax exemptions on energy efficient products. Connecticut had allowed sales tax exemptions on certain ENERGY STAR household appliances, but the exemption period expired in 2007.

¹³ Database of State Incentives for Renewables and Efficiency (DSIRE) maintained at North Carolina State University. Website dsireusa.org accessed August 2008.

- Thirty-three states, including Connecticut, offer some type of property tax exemption for renewable energy system installation. Connecticut, for example, *requires* towns to exempt from property tax renewable energy systems using Class I resources such as solar or wind, and *authorizes* town to exempt combined heat and power systems. A much smaller number (four) of states have exemptions on any increased value of property due to energy efficiency measures taken.
- By far, the most common financial incentive offered is the use of rebates on energy efficient or renewable products. Forty-two states have programs that issue a total of about 625 different rebates (mostly by utility companies) for energy efficient products, and 38 states have more than 200 different rebates for renewable energy measures.
- Outright grants are also offered to a lesser extent – 24 states and D.C. have grant programs to assist entities with renewable energy measures, and 20 states offer energy efficiency grants. Deferred or low-interest loans are also a financial incentive to residents and businesses. Connecticut offers both grants and loans, many through the Connecticut Energy Efficiency Fund.

Administration and Oversight

There are a number of different models for administering energy efficiency programs. As will be discussed in the final three chapters, Connecticut implements many different programs with a variety of funding mechanisms, including ratepayer surcharges, state bonds, the General Fund, and federal block grants. Program implementation is also varied including those administered the utilities, state agencies, state quasi publics, and non-profit organizations.

It is not clear that there is an ideal structure for administration of energy efficiency programs, especially one that is designed to ensure coordination, promote client participation among groups and energy users, avoid duplication, and operate cost effectively. Connecticut's administration of its energy efficiency programs, including those supported with ratepayer surcharges is discussed in the last three chapters of this report and program administration will be explored more thoroughly for the final report.

The energy efficiency and low-income assistance programs that are supported by ratepayers are subject to DPUC oversight, and include:

- Connecticut Energy Efficiency Fund plan and budgets;
- Connecticut Clean Energy Fund plan and budget; and
- Utility-sponsored plans and budgets that support low-income customers such as matching payment and forgiveness programs.

As part of the approval process, the plans and budgets are subject to public hearings and public comment period. Frequently, the Office of Consumer Counsel, the state advocate office for ratepayers, will provide official input.

For those programs that are not ratepayer supported, the oversight can be submission of a plan to the legislature, as is the case with the Connecticut Energy Assistance Plan, or to the federal funding agency, as with the federal Department of Energy weatherization assistance program. Oversight mechanisms related to the specific programs are discussed in the final three chapters of the report.

Measurement, Verification, and Evaluation

A vital step in program development and implementation is ensuring that energy efficiency programs, including the financial investments to support them, deliver results. This means the program must collect, track, and report on data including client participation, costs, and benefits. However, equally important is ensuring that the information is monitored and evaluated periodically by objective third parties, and that the results are used to improve the quality of the programs.

The measurement, verification, and evaluation of the utility-sponsored programs is somewhat formalized, and there is money in the CEEF and the Clean Energy Fund budgets for conducting evaluations. There is no requirement as to how often the individual CEEF programs be evaluated, although the Clean Energy Fund programs are statutorily required to be evaluated every five years.

Typically, national consultants specializing in energy efficiency are hired to evaluate the ratepayer-funded programs. There are a variety of tests and evaluation protocols and measures that are used depending on the program and the type of energy being assessed. The measurement and evaluation aspects of the electric efficiency programs will become even more important. As the auction payments for those begin in 2010, ISO-New England will require evaluations with demonstrated results will be required in order for the program sponsors to be paid.

Evaluations of programs that do not receive ratepayer funds are less formal, and often years go by without an assessment of whether goals are met, how well a program is working, or even how many residents are being served. These measurement and evaluation aspects of individual energy efficiency programs are also discussed in the last three sections.

Connecticut's Energy Efficiency Programs

As Figure III-1 illustrates, Connecticut has a myriad of programs aimed at energy efficiency and conservation as well as a number designed to help lower-income residents pay energy costs. The last three sections of this report describe the many programs and are organized mainly around the funding that supports the programs. Section III contains those that are funded by ratepayers, Section IV provides information on programs funded with state funds, and Section V discusses programs aimed to assist low-income residents pay their energy bills or to help weatherize their homes to make them more energy efficient. Appendix D contains a full listing of all the program websites by category and a brief highlight of the information to be found at the website.

Ratepayer-funded programs. Many of the energy efficiency and conservation programs are funded by electric utility customers, and more recently, gas company customers. The ratepayer-funded programs that are discussed in Section III are the:

- Connecticut Energy Efficiency Fund (CEEF);
- Energy Independence Act (EIA) programs;
- Municipal utility sponsored programs administered through the Connecticut Municipal Energy Efficiency Cooperative (CMEEC);
- Electric Efficiency Partners (EEP) program; and
- Clean Energy Fund (CCEF).

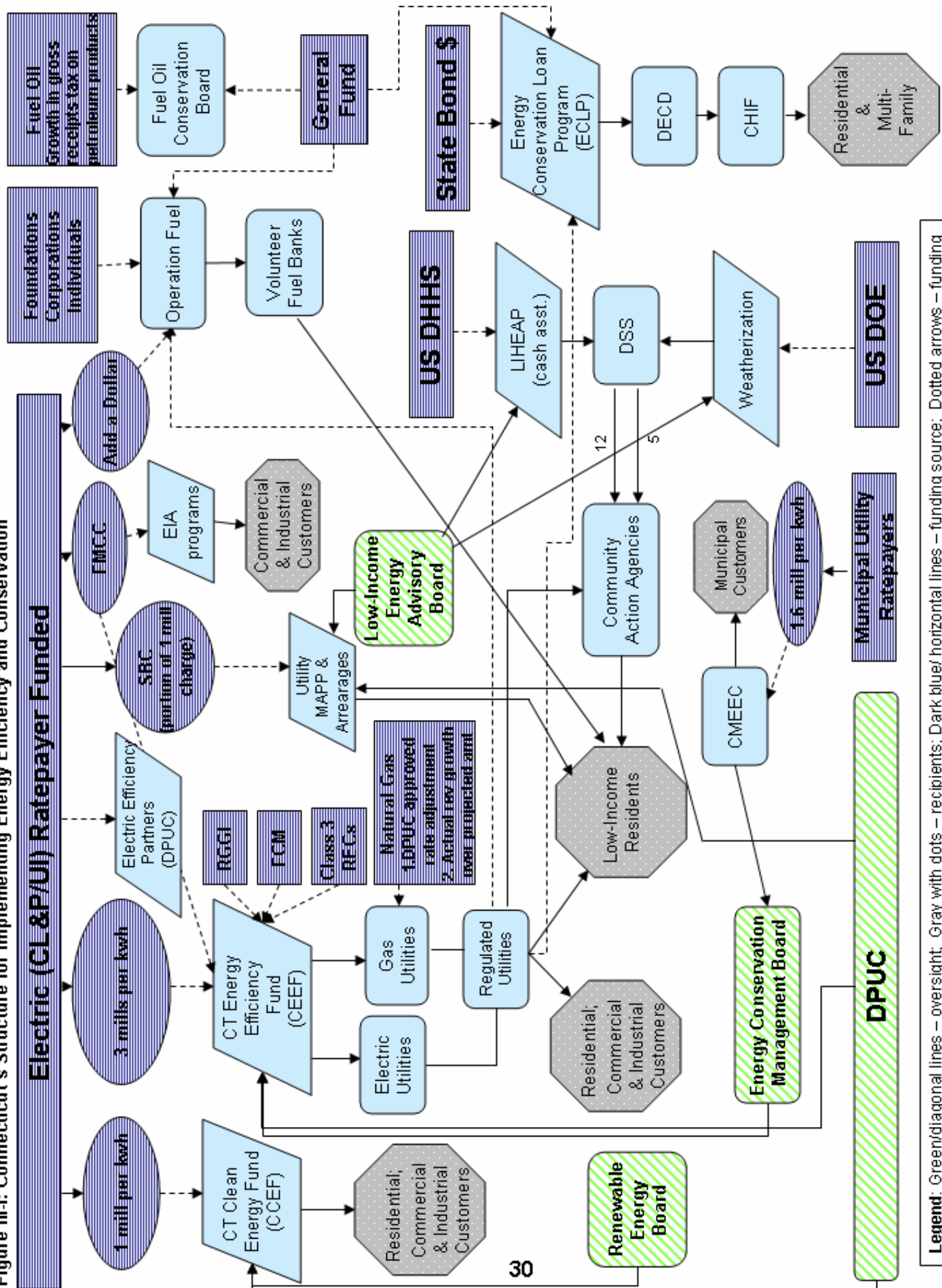
This section describes these major funds that are supported with ratepayer monies. In most cases this is done through an extra surcharge on all customers' bills, while in others financial support for programs is built into the overall rate. The funding mechanisms are explained below, as well as program administration, what oversight mechanisms exist, descriptions of the specific programs within each fund and what energy savings and benefits have been realized, if available.

State-funded programs. Section IV discusses similar aspects of the state-funded energy efficiency programs which include the:

- Energy Conservation Loan Program (ECL);
- Furnace rebate program within the Office of Policy and Management;
- Fuel oil conservation program; and
- Efforts in state government facilities.

Low-income energy assistance programs. Section V provides a description of those programs assisting low-income households. Funding for these programs comes from federal and state government, charitable donations, as well as utility ratepayers. These programs include:

Figure III-1: Connecticut's Structure for Implementing Energy Efficiency and Conservation



- Connecticut Energy Assistance Program (CEAP);
- Operation Fuel;
- Utility-sponsored matching payments and debt forgiveness; and
- Weatherization programs administered both by the state and by the utility companies.

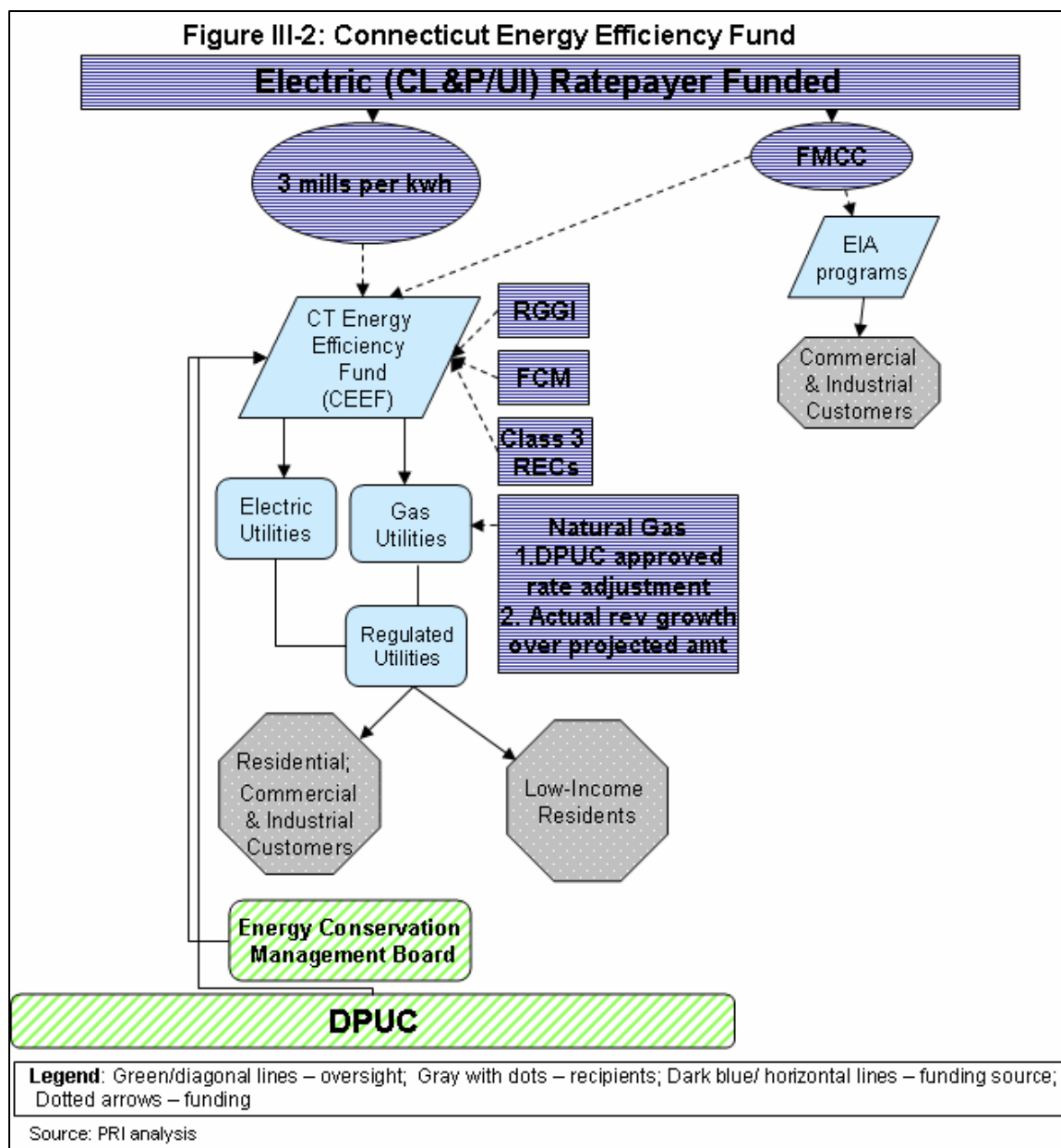
Connecticut Energy Efficiency Fund

The Connecticut Energy Efficiency Fund (CEEF) was created by legislation in 1998 as a result of electric restructuring. When the fund first started it applied only to the investor-owned electric utilities and only more recently as a result of 2005 legislation were gas utilities added.

For calendar year 2007, the fund spent close to \$100 million. The fund is primarily financed through a charge on United Illuminating (UI) and Connecticut Light and Power (CL&P) customer bills. The fund supports the development and administration of cost-effective energy efficiency and load management programs for residential, commercial and industrial customers. The programs are administered by the electric distribution companies, CL&P and UI, and thus only serve customers in their territories.

The CEEF's primary objectives are: (1) advancing efficient use of energy; (2) reducing air pollution and other negative environmental impacts; (3) promoting economic development; and (4) providing energy security and affordability.

Figure III-2 shows the CEEF structure including the funding mechanisms, utilities involved, customers served, and administrative and regulatory oversight in existence.



Funding. The primary funding mechanism is through a statutorily established 3 mills per kWh surcharge (\$0.003 cents) on each electric ratepayer’s bill. This means the typical residential customer is charged \$25.20 for the year. The total amount realized from the surcharge for the fund in 2007 was \$66 million. Lesser amounts are derived from the customer adjustment mechanisms (CAMs) on gas utility customer bills and proceeds from: the ISO-NE Forward Capacity Market (FCM), Class 3 Renewable Credits (RECs)¹⁴, and the Federally Mandated Congestion Charge (FMCC).¹⁵

¹⁴ Renewable Energy Credit - A certificate that is issued for each Megawatt-hour (MWh) of energy generated from certain clean or renewable resources or for each MWh of energy conserved through the installation of energy

The second largest source of funding for the CEEF programs is derived from the FMCC. Additional money, when ratepayer surcharge funding has not met demand for efficiency projects, has been authorized by DPUC to be raised through this charge that in 2007 amounted to \$12 million. In addition, the utility companies in 2005 were authorized to raise money for projects through the charge that ultimately would lower charges incurred because of congestion.

As a result of the 2007 energy legislation, a portion of the financial value derived from the Class III Renewable Energy Credits (RECs) is directed to the CEEF. In 2007, the fund collected \$3.9 million from the RECs.

Another source of funding for the CEEF includes the Forward Capacity Market, which generated \$2.6 million in 2007. Beginning in 2006 the Federal Energy Regulatory Commission approved a settlement that established a redesigned wholesale electric capacity market in New England. The new market was structured to encourage the maintenance of current power plants and construction of new generation facilities. ISO-New England, the operator of the region's electric market, projects energy needs for the region ahead three years. An auction is conducted to purchase the power resources necessary to satisfy the region's future needs. The auction includes both electric supply from power plants and for the first time in February 2008 includes as eligible capacity, *decreased electricity use through demand-side management resources*. Having the auction cover a three-year period allows new projects still under development to compete in the market.

The first auction was held in February 2008, and the Connecticut Energy Efficiency Fund will receive revenues from the auction beginning in June 2010. The energy efficiency measures purchased through the auction will have to go through a measurement and verification process to verify that energy efficiency measures promoted by the programs were installed, are still in place, and are functioning as intended.

Program administration. The programs funded through the Connecticut Energy Efficiency Fund are administered by the electric distribution companies (CL&P and UI) in conjunction with the gas utilities (Connecticut Natural Gas, Southern Connecticut Gas, and Yankee Gas). The electric utilities receive an administration fee, known as a performance incentive, as payment for operating the programs, and also receive reimbursement for operating expenses. In 2007, the performance incentive for the two major utilities totaled \$5.7 million, or about 6 percent of total expenditures.

Generally, the utilities market the programs, although the Energy Management Conservation Board has begun to actively promote the Connecticut Energy Efficiency Fund as the sponsor of the programs.

efficiency measures. RECs can be sold or traded to fulfill the Renewable Portfolio Standard and are monitored by ISO-NE.

¹⁵ Federally Mandated Congestion Charges – The Federal Regulatory Energy Commission allowed generators to incorporate into their rates additional charges for areas where lack of transmission caused congestion problems; issue was especially acute in Southwest region of the state. The DPUC authorizes FMCC additional funds from ratepayers to establish programs that will help alleviate those congestion problems.

The two electric utilities accept applications from residents and businesses in their respective service areas, determine program eligibility, and pay for the financial incentives or specific efficiency measures, depending on the program.

For most of the programs, the utilities also select the vendors that will do the work required in the business or home. Both utilities indicated to committee staff that they use a competitive process based on response to qualifications to select vendors. Connecticut Light and Power stated it received 18 proposals and chose 12 different vendors for its small business program, while United Illuminating contracts with 14 vendors in its small business programs. CL&P has selected five vendors to conduct its Home Energy Solutions (HES) program, while UI has three vendors for that program.

There are a couple of exceptions where the utilities do not select the vendors. For the low-income weatherization programs the utilities use the same community action agencies that conduct the work for the publicly funded weatherization program, although UI also has one private vendor. In the large commercial and industrial programs, the establishments select their own contractors, and submit the work proposal to the utility. The utility reviews it, and if it agrees with the proposal, will send out a letter of award, although the two utilities differ on how and when this is done.

Administrative oversight. The Energy Conservation Management Board (ECMB), a statutorily established 14-member board, advises and assists with the implementation and administration of the CEEF programs. The board has three statutory tasks:

- review and approve plans including reviewing the budgets and budget allocations, program proposals, and new initiatives;
- monitor the performance of programs, evaluate program implementation, and provide feedback to the utilities on a regular basis; and
- examine and make recommendations to the DPUC and/or General Assembly on key policy matters.

The board has six consultants that it has contracted with to assist in these efforts. Utility members of the board may only vote on matters relating to conservation measures pertaining to their utility. The board advises on the budget for the fund and its programs but does not set the budget for the CEEF. In 2007, expenses for the ECMB and its consultants, which came out of the CEEF, totaled \$475,542 or about 0.5 percent of overall spending.

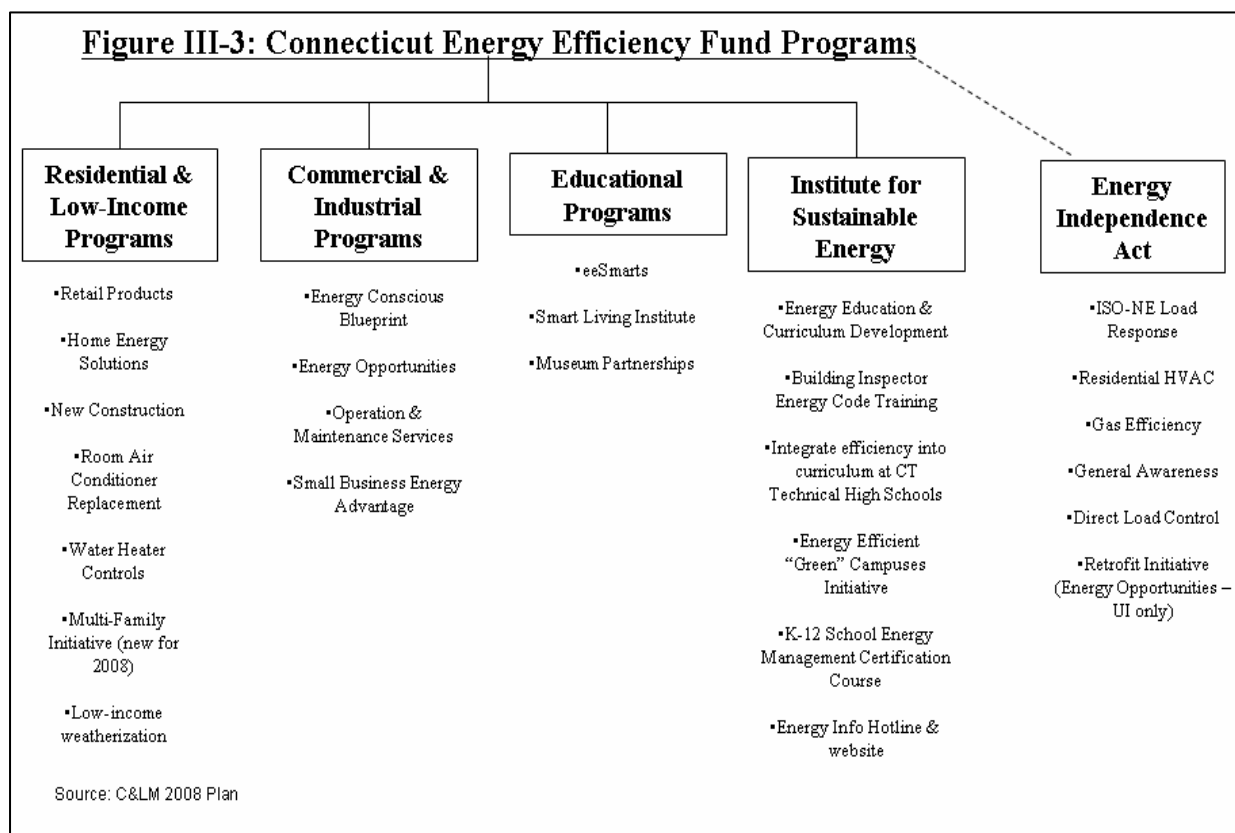
Regulatory oversight. The Department of Public Utility Control (DPUC), the state's regulatory body for investor-owned utilities, has regulatory and budget oversight over the Connecticut Energy Efficiency Fund since funding is derived from the rates set by the department.

Each year the utilities and the ECMB develop a plan for the Connecticut Energy Efficiency Fund (also known as the Conservation and Load Management Plan) for submission to DPUC. Typically the plan is submitted to the department in October and is based on the upcoming calendar year. The DPUC treats the plan as a regulatory proceeding, requiring a

docket number and accompanying filings, a hearing, and a resulting decision on the plan, its programs, and its funding levels. The DPUC issued its most recent final decision regarding the 2008 Plan in June 2008. The decision set the funding level of the CEEF at \$136.7 million for the 2008 program year (including funding from all sources), \$15.4 million above the proposed budget filed October 1, 2007 since demand for energy efficiency programs was higher than planned.

Energy efficiency programs. CEEF programs are designed to meet the needs of all residential customers including low-income residents, as well as commercial and industrial customers. In addition, the fund supports educational programs administered by the utilities and contracts with the Institute for Sustainable Energy to assist with educational outreach. Figure III-3 displays the programs offered in each sector.

The 2005 Energy Independence Act (EIA) required the implementation of programs aimed at reducing peak demand. These programs are supported with ratepayer funds, administered by the utilities, and included in CEEF plans and documents submitted to DPUC. Therefore, these programs are included as part of CEEF programming and will be discussed later in this section.



Residential programs. As shown in Figure III-3, there are six CEEF funded programs established for all residential customers regardless of income level. There is also a

weatherization program, targeted for low-income households (discussed in Section V). The residential and low-income programs received \$26 million in 2007.

Table III-1 lists the largest programs available for residential customers, with activity levels from 2004 through the second quarter of this calendar year (Q2 2008).

Table III-1: CEEF Major Residential Programs		
Program	Description	Customers served (2004-Q2 2008)
Retail Products	In 2008 the utilities pursued negotiated cooperative promotions (NCPs) where payment of incentives is tied to store-level sales data. Previously, rebates and coupons were offered directly to customers but were abandoned upon determination they were not cost-effective.	Approx. 10.5 million bulbs, fixtures, and appliances
Home Energy Solutions	Provides comprehensive in-home energy services including both an audit and direct installation of many efficiency measures.	Households – 35,284 (electric) 6,661 (gas)*
New Construction	Encourage builders and consumers to move beyond ENERGY STAR specifications to high-performing homes that qualify for federal tax credits. Where this is not possible, work to upgrade the energy elements of the home beyond standard code levels.	Households - 5,934
Weatherization	Spectrum of services from neighborhood canvass to comprehensive weatherization. Further discussion in Section V.	Households – 69,987 (electric) 5,867 (gas)*
TOTAL Spent on Residential Programs (2004-Q2 2008)¹⁶		\$105,230,079
*Gas households also included in the electric household count		
Source: Information requested from CL&P and UI; C&LM 2008 Plan		

Commercial and industrial programs. Table III-2 describes five CEEF funded programs established for commercial and industrial customers. The commercial and industrial programs in 2007 received \$60.2 million.

¹⁶ Total dollars expended includes residential programs not listed in the table such as the Room Air Conditioner Turn-in Program

Table III-2: CEEF Major Commercial and Industrial (C&I) Programs			
Program	Description	Incentive	C&I Customers Served¹⁷ (2004-Q2 2008)
Energy Conscious Blueprint	New C&I construction, planned remodeling, major renovations, and new equipment	Up to 100% of incremental cost	3,603
Energy Opportunities	All C&I customers	Up to 60% of installed cost (dependent upon energy-efficient measure) and possible two-year payback buy down Prescriptive rebates from \$15-\$55 per fixture or 100% of the incremental cost	2,043
Accelerated Chiller Retirement (Only applies to electric chillers not gas engine chillers)	C&I customers with water-cooled chiller 25 years or older. Unit must operate during ISO summer peak hours.	Incentives are the lesser amount of 75% of the total installed cost, 100% of the Utility Measure Cap, or \$600/ton installed cost.	27
Small Business Energy Advantage	All C&I customers, including municipalities and state buildings, with up to 200 kW (CL&P) or 150 kW (UI) of average peak demand	Interest free financing with prescriptive incentives for : Lighting up to 50% installed cost HVAC up to 50% of installed cost Refrigeration up to 50% of installed cost	7,979
Operation & Maintenance (O&M) Services	All C&I customers	Incentives up to 50% of installed cost (Southwest CT customers eligible for incentives up to 100% of installed cost).	148
TOTAL Spent on Commercial and Industrial Programs (2004-Q2 2008)			\$205,712,206
Source: Information requested from CL&P and UI; C&LM 2008 Plan			

Educational programs. Each utility operates specific educational programs for customers in their area. UI operates the Smart Living Center in Orange intended to educate residents about the importance of energy efficiency through exhibits. CL&P has a Museum Partnership program, which established a permanent exhibit at the Stepping Stones Museum in Norwalk and has also partnered with the Clean Energy Fund to create a joint exhibit at the Connecticut Science Center. One joint program, eeSmarts, provides science education curriculum related to energy efficiency for grades K-8.

Institute for Sustainable Energy (ISE). The institute was established in 2001 at Eastern Connecticut State University to focus on matters related to energy education, energy policy, energy conservation and load management, energy efficiency, renewable energy and the dissemination of information to promote a more sustainable energy future.

Funding is primarily provided by the Connecticut Energy Efficiency Fund. The institute also receives funding from the Clean Energy Fund, Tremaine Foundation, and the Office of Policy and Management. The total budget for 2008 is \$622,000; approximately \$400,000 is provided by the Connecticut Energy Efficiency Fund. For the 2009 program year, the institute's total budget is \$680,000 of which CEEF will provide \$500,000.

¹⁷ Represents the number of customers served; one customer can have multiple efficiency measures installed

The institute sponsors numerous educational programs including:

1. Building Inspector Code Training which increases awareness, knowledge, and enforcement of the energy-related components of the state energy code for residential and commercial inspectors;
2. K-12 School Energy Management Certification Course which focuses on identifying cost effective practices and alternatives to school maintenance personnel's current operating procedures as well as on purchasing efficient equipment; and
3. Energy Education Curriculum Development Program which developed and launched a high school education curriculum accessible through www.cteducationenergy.com. The program also works with the Connecticut technical high schools to integrate energy efficiency and renewable energy topics into the curriculum to help prepare students to enter "Green Collar Jobs" in Connecticut.

In addition, the institute administers www.energyinfo.com, a new, more consolidated website aimed at coordinating information and serving as a clearinghouse for web-based information. The institute also staffs a 1-877-WISE-USE phone line during regular business hours. The phone line provides energy efficiency information to callers and also tracks call volume, sources of calls, and topics of interest.

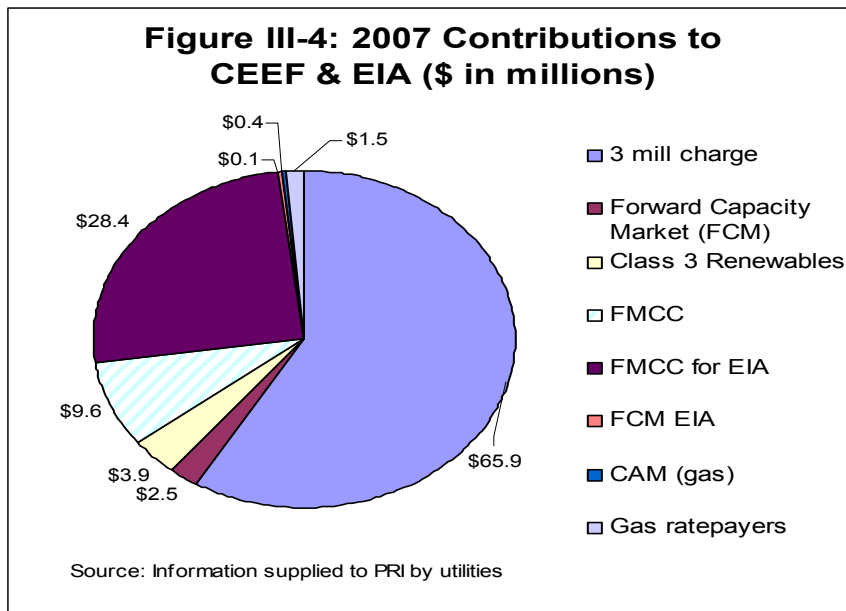
Energy Independence Act (EIA). While not technically a program, the act (P.A. 05-01) established several initiatives and programs to reduce electric power supply costs. The joint programs offered by the utilities include: ISO-NE Load Response Programs and a General Awareness Campaign. Two programs are only offered for UI customers: a Commercial Retrofit Program and a Residential HVAC Program. One program, the Gas Efficiency Pilot Program, was only offered by CL&P and is currently not offered. These programs, aimed at commercial and industrial customers, encourage onsite generation and conservation through load management as a way to reduce generation-related congestion charges. The charge on electric ratepayer bills for these programs in 2006 and 2007 totaled \$51.2 million.

CEEF FUNDING LEVEL ANALYSIS

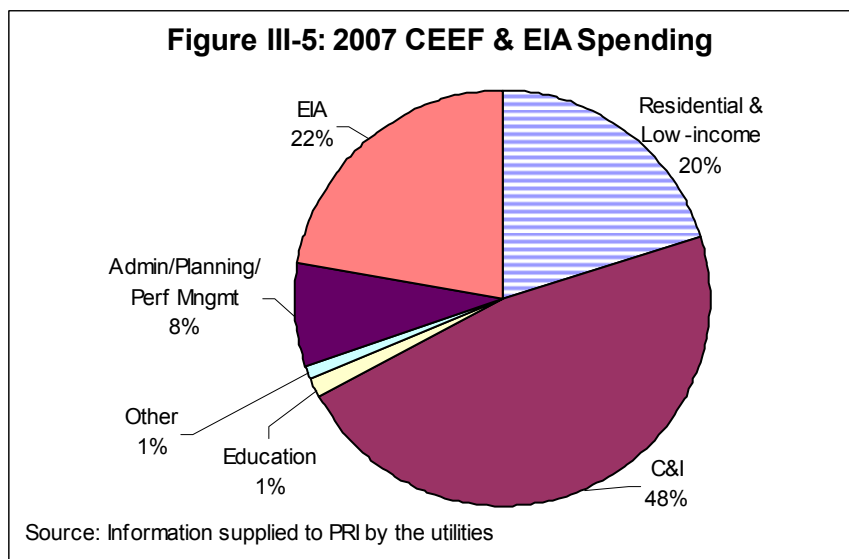
This funding analysis covers both CEEF and EIA programmatic spending. Monies raised for CEEF specific programming totaled \$100 million in 2007 and monies raised for EIA programs totaled \$28.4 million in 2007.

History of funding. CEEF funding and budgeting was seriously impacted in 2003, when the legislature used the fund to help alleviate the state's fiscal crisis. Beginning in 2004 and 2005, the collections decreased due to the transfer of money from the CEEF to the General Fund and to pay for deficit reduction bonds. Ratepayers are still charged the 3 mills per kWh, but each year a portion of the collections goes towards repayment of the deficit reduction bonds. Since 2003, \$85 million has gone to pay off the bonds and \$31 million has been transferred to the state General Fund. However, in P.A. 07-242, the legislature appropriated from the General Fund the sum of \$95 million dollars for the purpose of defeasing the state deficit reduction bonds maturing after December 30, 2007.

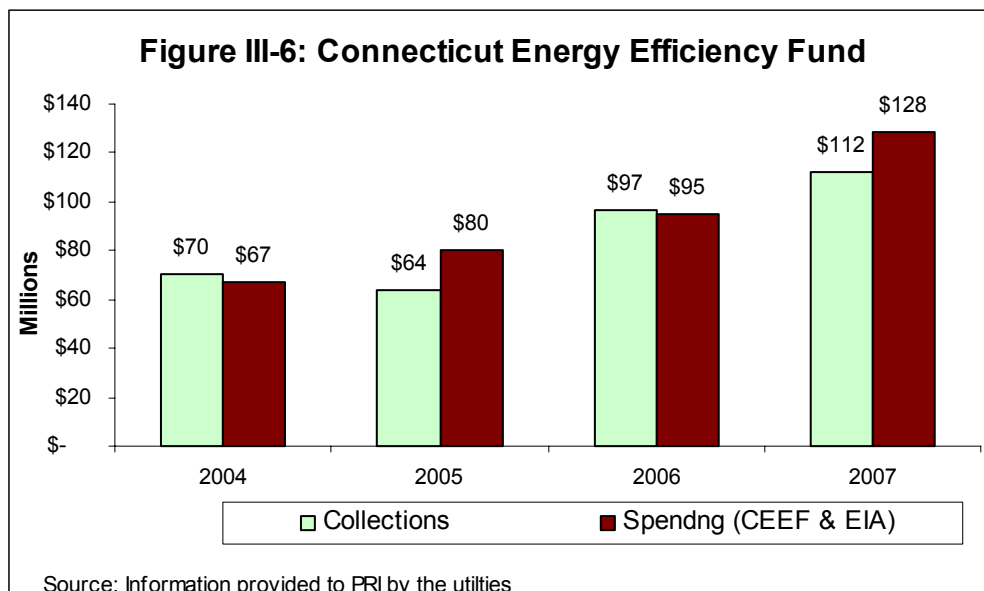
Sources. As mentioned previously, the public benefits surcharge (3 mills per kWh) is not the only source of CEEF funding, although it is the largest with \$65.9 million contributed in 2007. Figure III-4 shows the other sources of funding that constitute the CEEF, including funding raised specifically for Energy Independence Act programs.



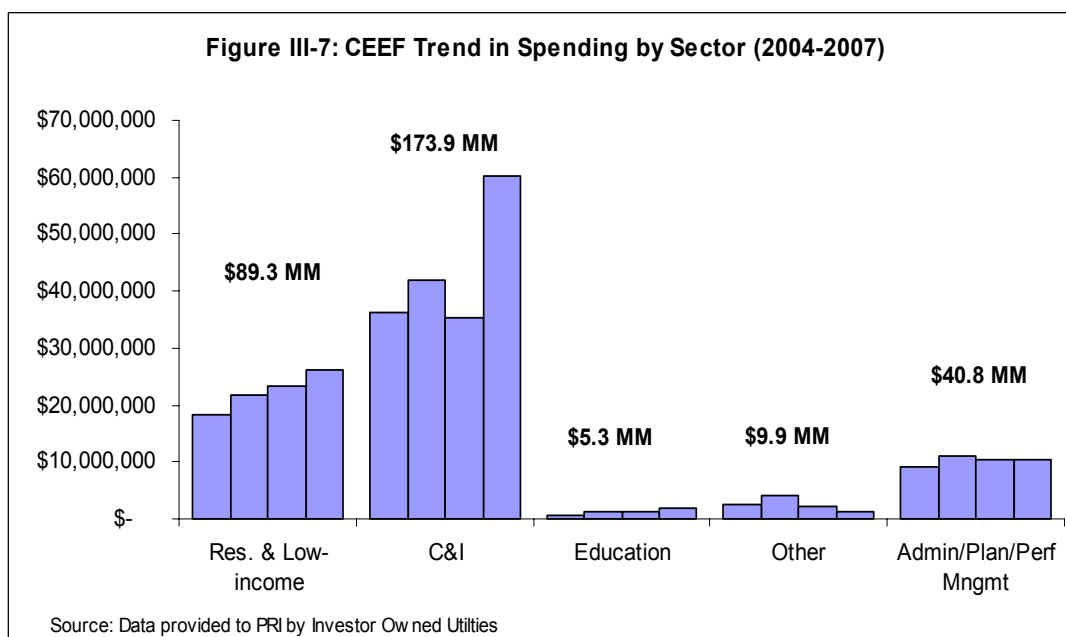
Spending on CEEF and EIA programs. Spending on energy efficiency programs in 2007 was \$128.2 million. These expenditures included programming for residential, commercial, and industrial customers as well as projects required under the EIA. Figure III-5 shows how spending is allocated for the various programs as well as for administration and performance management fee spending.



Between 2004 and 2007, the Connecticut Energy Efficiency Fund has spent a total of \$319 million on energy efficiency and conservation programs as well as \$51 million for EIA programs. In the same time period, \$343.6 million has been collected as shown in Figure III-6.



Between 2004 and 2007, the CEEF spent \$89.3 million on residential and low-income programs. During the same period, \$173.9 million was spent on commercial and industrial efficiency programs. As shown in Figure III-7, residential and low-income spending has steadily increased over time, whereas C&I program spending has fluctuated with a 70 percent increase between 2006 and 2007.



Parity. The Energy Conservation Management Board has an objective of parity in treatment among the ratepayers. Commercial and industrial, residential non low-income, and residential low-income customers contribute approximately 58 percent, 31 percent, and 11 percent respectively. Thus spending that benefits a ratepayer group in a given year should be proportional to their contribution made through the 3 mill charge. However, as Table III-3 demonstrates, when actual spending levels are analyzed it does not appear this goal has been met. Only CEEF funding and programs were considered and not EIA since those programs are specifically targeted to reducing peak demand and load among commercial and industrial users.

The percentage in 2007 sums to more than 100 percent since spending was greater than collections by the 3 mill charge. This is largely due to an increase of \$25 million over the prior year in spending on commercial and industrial projects.

Table III-3: % of Ratepayer collected funds spent on efficiency programs				
	2004	2005	2006	2007
Residential including low-income	26%	34%	33%	34%
Commercial & Industrial	51%	66%	50%	78%
Source: PRI analysis				

Energy Independence Act. Approximately 20 percent of collections raised through ratepayers is targeted toward programs established by the 2005 Energy Independence Act. As noted previously, these programs are targeted primarily to large commercial and industrial customers to achieve a decrease in peak load. Table III-4 shows the breakout of spending for the different programs for the two years they have been in operation.

Table III-4: Energy Independence Act Total Program Expenditures (Actual \$)			
Program Name	2006	2007	Total
ISO-NE Load Response	\$ 18,925,251	\$ 25,975,715	\$ 44,900,966
Residential HVAC	1,260,482	42,473	1,302,955
Energy Opportunities	2,142,084	2,024,202	4,166,286
General Awareness	298,136	296,900	595,036
Gas Pilot Program	121,094	45,388	166,482
Direct Load Control	-	43,720	43,720
Total	\$ 22,747,047	\$ 28,428,398	\$ 51,175,445
Source: CL&P and UI			

CEEF ACTIVITY LEVEL ANALYSIS

Although the intent of the Connecticut Energy Efficiency Fund is to focus on both electric and gas efficiency, the vast majority of program participants have been electric customers. This is due to the CEEF's focus on programs and technologies targeted to electric customers since the bulk of funding comes from electric customers. The gas utility customers began contributing to the CEEF only in 2006, although gas utilities had operated their own programs on a much smaller scale previously. There has been an effort to create equity by having the electric and gas utilities pay for the program measures that relate to their respective energy savings. The majority of the savings to date have come from electricity.

Residential customers served. Between 2004 and the second quarter of 2008, a total of 111,205 residential households¹⁸ have been served by three of the residential programs: Residential New Construction, Home Energy Solutions,¹⁹ and Low-Income weatherization. (See Appendix E for trend information on participant levels).

Commercial & industrial customers served. Between 2004 and the second quarter of 2008, 15,003 commercial and industrial customers have been served by all the programs offered by the CEEF. These figures represent the number of customers and not the number of projects, as one customer might utilize multiple efficiency projects at their facility. (See Appendix E for trend information on participant levels).

CEEF SAVINGS AND BENEFIT ANALYSIS

The Connecticut Energy Efficiency fund is required to calculate energy savings and benefits as a result of the efficiency measures implemented as a way to show the cost-effectiveness of the programs.

Calculated savings. Each year the electric distribution companies (CL&P and UI) must submit program savings documentation (PSD) to the DPUC. The documentation serves as the base of the demand reduction calculations that are submitted to ISO-NE for the forward capacity market and also form the basis of estimated savings in the CEEF plan approved by DPUC.

The savings calculations in the PSD manual represent typical measures that, if taken, would produce the savings estimate. According to the PSD manual, third party engineering consultants are contracted to run simulations necessary for complicated detailed projects and review all calculations for reasonableness. Any projected electricity savings in the tables below are those calculated by the utilities for the programs based on the PSD manual.

Table III-5 shows the calculated savings to the grid from residential programs and Table III-6 shows the calculated savings from programs implemented for commercial and industrial customers. Table III-7 shows the gas efficiency savings for the residential programs (savings for commercial and industrial programs only realized in 2008). For an explanation of the various energy measurements, such as megawatts and kilowatt hours, see Section I, Table I-1.

In order to maintain a reliable electricity system, Connecticut requires approximately 7,000 megawatts of power to meet summer peak demand for one year. As can be seen in the tables below, since 2004, the residential, commercial, and industrial programs have saved Connecticut approximately 390.8 megawatts.

¹⁸ Does not include retail products, lighting, or purchases from Smart Living Catalog

¹⁹ In 2007, the CEEF combined smaller residential programs to create one comprehensive residential program offering an energy audit and direct measure installation called Home Energy Solutions.

Table III-5: Residential Annual <i>MW</i> Savings					
Residential	2004	2005	2006	2007	Total
Retail Products	6.5	5.6	6.3	7.3	25.7
Residential New construction	0.4	2.1	2.5	0.8	5.8
Home Energy Solutions	2.9	3.9	3.8	2.9	13.6
Low-Income	0.9	1.2	1.6	1.4	5.2
Appliance Retirement	1.7	1.9	.5	-	4.1
Other programs currently not offered	1.2	.6	-	-	1.8
TOTAL	13.7	15.4	14.6	12.4	56.1
Source: CL&P and UI					

Table III-6: Commercial & Industrial Annual <i>MW</i> Savings					
C&I - Major Programs	2004	2005	2006	2007	Total
Energy Conscious Blueprint	29.2	22.5	13.5	12.0	77.1
Energy Opportunities	3.2	3.9	18.6	21.7	47.3
Operating & Maintenance Services	0.8	1.8	0.7	0.5	3.8
Small Business Advantage ²⁰	6.2	6.9	10.2	11.3	34.6
ISO-NE Load Response	34.7	78.4	31.1	23.7	167.9
Other Programs currently not offered	1.4	2.4	-	-	3.9
TOTAL	75.5	115.9	74.1	69.2	334.7
Source: CL&P and UI					

Table III-7: Gas Efficiency Program Annual Savings (ccf)		
Residential	2006	2007
Home Energy Solutions	39,696	175,381
Low-Income	123,734	235,099
TOTAL	163,430	410,480
Source: CNG, SNG, Yankee Gas		

Given the savings listed in Table III-8, efficiency measures for residential customers have saved the equivalent of the electricity needed for 10,621 to 14,266 homes in a given year (a typical household in Connecticut consumes approximately 700 kWh a month or 8400 kWh in a year).

Table III-8: Residential Annual <i>kWh</i> Savings (000's)				
Residential	2004	2005	2006	2007
Retail Products	78,261	69,304	79,772	93,060
Residential New construction	932	3,589	4,487	3,182
Home Energy Solutions	1,758	2,434	5,779	8,931
Low-Income	12,606	13,887	14,388	14,661
Appliance Retirement	7,244	10,220	3,458	-
Other programs currently not offered	4,278	6,004	-	-
TOTAL	105,079	105,438	107,884	119,834
Source: CL&P and UI				

²⁰ Includes projects completed for municipalities and schools

Table III-9 lists the total kWh savings from commercial and industrial programs since 2004, as well as the savings by individual programs.

Table III-9: Commercial & Industrial Annual kWh Savings (000's)				
C&I – Major Programs	2004	2005	2006	2007
Energy Conscious Blueprint	54,639	55,297	61,690	59,307
Energy Opportunities	18,591	24,167	114,771	125,509
Operating & Maintenance Services	3,553	11,330	5,754	5,774
Small Business Advantage	23,668	21,018	38,322	44,978
Other programs currently not offered	6,794	11,786	-	-
TOTAL	186,703	212,362	220,537	235,568
Source: CL&P and UI				

EIA Electricity Savings. The Energy Independence Act requires DPUC to authorize near-term measures that would reduce Federally Mandated Congestion Charges. As shown in Table III-10, 226 megawatts and 367 megawatts were reduced in 2006 and 2007 respectively as a result of the implemented measures.

Table III-10: EIA Electricity Savings (Annual MW Savings)		
	2006	2007
Load Response	223	365
Energy Opportunities	2	2
Residential HVAC	0.8	0
Gas Pilot Program	0.11	0.16
TOTAL	226	367
Source: CL&P and UI		

A gas efficiency pilot program was an approved near-term measure supported by the EIA legislation. The pilot program funded four projects and reduced FMCC charges by providing reductions in electrical consumption and peak load through the use of efficient gas cooling technologies instead of electrical cooling equipment. Table III-11 below shows the total energy savings from the pilot program based on 225 tons of installed capacity. Over the course of the program, an additional 50 tons were installed; so the total actual energy savings would be slightly higher than what is shown in the table. Although the technology demonstrated it reduced peak demand and overall energy use, the program is no longer offered.

Table III-11: Comparison of Total Energy Savings for Gas Efficiency Pilot Program under EIA				
	Electric Unit Energy Usage	Natural Gas Unit Energy Usage	Electric Savings	% inc/(dec)
Peak Demand (kW)	115	5	110	(96%)
Electrical Usage (kWh)	53,735	3,677	50,058	(93%)
Natural Gas Usage (ccf)		3,494		100%
BTU Usage	661,468,971	430,831,278	230,637,694	(35%)
Source: Docket 05-07-14PH01 Late File No. 4				

Cost Benefit Analysis. Various cost benefit tests are employed for measuring the cost-effectiveness of efficiency programs. A summary of these cost-effective tests, and what they measure, is summarized in Table III-12.

Table III-12: Efficiency Cost Tests	
Cost Test	Questions Addressed
Participant Cost Test	-Is it worth it to the customer to install EE?
Ratepayer Impact Measure	-Would the project require an increase in rates to reach the same operating margin? -What happens to customers' bills or rates?
Utility Cost Test (a.k.a. Electric System B/C Ratio)	-Do total utility costs increase or decrease?
Total Resource Cost Test (a.k.a. Total Resource B/C Ratio)	-Are all of the benefits greater than all of the costs (regardless of who pays the costs and who receives the benefits)?
Societal Cost Test	-Are all of the benefits, including indirect benefits, greater than all of the costs (regardless of who pays the costs and who receives the benefits)?

The DPUC requires the Connecticut Energy Efficiency Fund to report on the cost effectiveness of their programs ensuring programs are designed to obtain energy savings and system benefits, including mitigation of federally mandated congestion charges. Currently, the DPUC only requires plan goals to be submitted, not actual numbers from the prior year. Table III-13 shows the actual utility cost test results based on realized savings and the *estimated* total resource cost test.

Using the cost benefit test and total resource test, the utility companies apply the calculation to the individual programs and the efficiency measures taken to arrive at the actual cost-effectiveness results. For example, for every dollar the fund spends on the retail products program, the electric system calculated lifetime savings range from \$6 to \$9.80. From these program results, the CEEF aggregates or levels out the savings for all fund programs. This process is the origination of the claim that overall, “every \$1 spent yields \$4 in savings.”

CL&P and UI utilize different methods of accounting for program expenditures and therefore electric and total energy savings are not necessarily accounted for in the year they were realized. CL&P accounts for *both* the cost and savings of the efficiency measure when the project is complete. On the other hand, UI realizes the energy savings when the project is complete but realizes the cost of the project when the letter of agreement is signed. For UI, this results in costs and savings not aligning in the same accounting year for projects that cross over calendar years and can explain the significant differences in cost effectiveness results between the two companies.

Although the DPUC issued a decision in 2005 (Docket 05-06-05) requiring both companies to utilize a “singular, consistent method,” company practices did not change and the issue has been raised again by the DPUC.

Table III-13: Cost Effectiveness Tests 2007						
	Utility Cost Test (Actuals)			Total Resource Cost Test (Estimated)²¹		
Residential	CL&P	UI	Overall	CL&P	UI	Overall
Retail Products	6.1	9.8	6.8	6.8	4.0	5.9
Residential New Construction	1.3	1.7 ²²	1.5	2.0	2.9	2.2
Home Energy Solutions	1.6	1.1	1.5	1.9	1.2	1.8
Low Income	1.1	2.0	1.2	2.5	2.7	2.5
Commercial	CL&P	UI	Overall	CL&P	UI	Overall
Energy Conscious Blueprint	4.2	3.3	4.0	6.9	3.3	5.9
Energy Opportunities	4.9	3.8	4.7	2.5	1.8	2.3
O&M	3.0	14.3	4.2	2.7	17.4	4.2
Small Business	4.1	4.5	4.2	2.3	2.2	2.3
Overall			4.0			3.1

Source: PRI analysis based on data provided by UI & CL&P

Connecticut Municipal Electric Energy Cooperative (CMEEC)

The Connecticut Energy Efficiency Fund does not serve customers served by non investor-owned utilities. Instead, CMEEC a cooperative formed in 1976 by the state's publicly owned electric utilities, oversees energy efficiency programs for its customers.

CMEEC is owned by the municipal utilities in the cities of Groton and Norwich, the Borough of Jewett City, and the Second (South Norwalk) and Third (East Norwalk) Taxing Districts of the City of Norwalk. CMEEC also provides all the power required by other utilities participating in CMEEC including the Town of Wallingford Department of Public Utilities, the Bozrah Light and Power Company, and the Mohegan Tribal Utility Authority. All together these utilities provide power for about 5 percent of Connecticut residents.

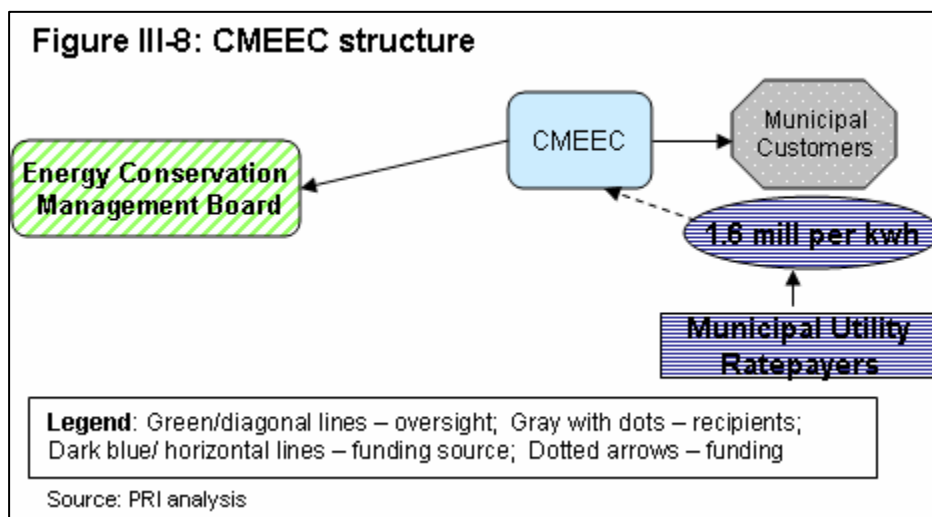
The broad goals of CMEEC are to:

- develop and implement a collaborative program which balances the existing statewide efforts;
- create unique programs where these make the most sense; and
- capitalize on direct customer relationships.

Figure III-8 shows the structure for implementing energy efficiency and conservation programs to municipal utility customers.

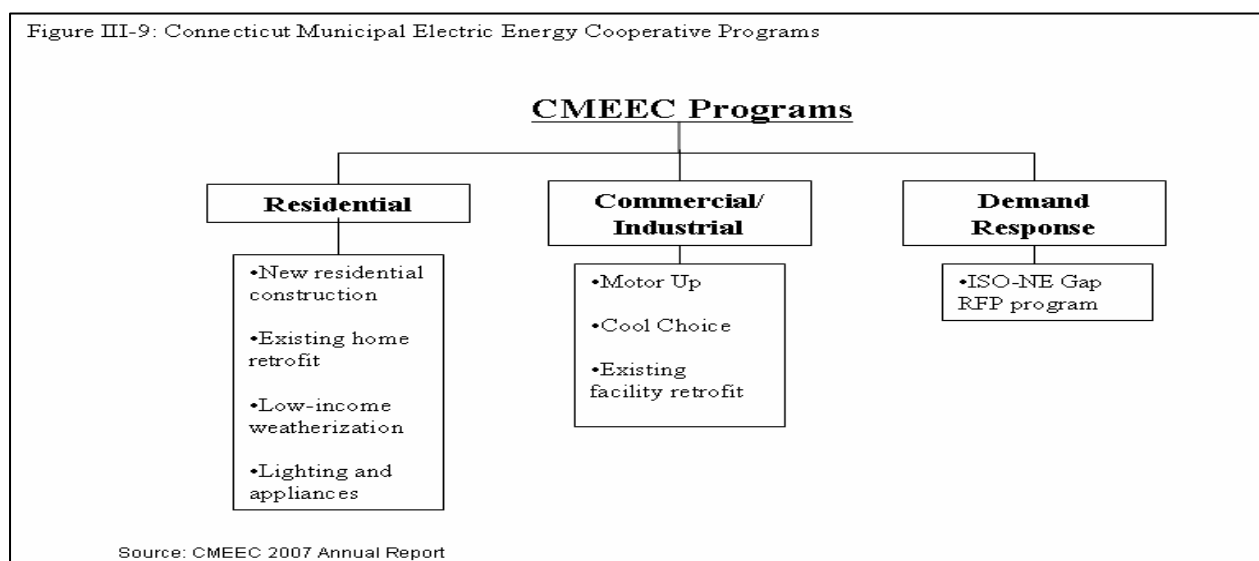
²¹ The utilities do not track customer costs so only estimated figures can be provided

²² Calculated average (2003-2007) since the accounting method employed by UI does not match savings and costs in the same year



Funding. The 2005 Energy Independence (P.A. 05-01), discussed earlier in the CEEF description, mandated the municipal utilities charge 1 mill per kilowatt hour beginning in 2006 for energy conservation programs, and increasing to 2.5 mills starting January 2011. The money from the surcharge goes into a special nonlapsing fund held by CMEEC, which must develop a conservation plan to include efficiency programs that are consistent with CEEF programs. The plan is submitted to the ECMB for review, although the CMEEC programs and budget are not part of the CEEF and not subject to the same level of approval by ECMB. Also, DPUC does not approve its plan and budget.

Energy efficiency programs. Each municipal utility operates its own energy efficiency programs for residential, commercial, and industrial customers with CMEEC coordinating the programming. In addition, municipal customers can participate in the demand response program through ISO-NE. Figure III-9 shows the different programs offered by CMEEC.



Residential programs. CMEEC program offerings for residential customers are: incentives for new residential construction; an existing home retrofit; low-income weatherization program; and rebates for efficient lighting and appliances. Participation by each of the municipal utilities varies by program. For example, Norwich Public Utility (NPU) is the only utility participating in the new residential construction program while Groton Utilities and NPU were the only two that offered weatherization services to low-income residents in 2007. CMEEC does not offer a program similar to the CEEF Home Energy Solutions program where customers who are not low-income can receive an energy audit with direct installation of efficiency measures.

Commercial and industrial programs. CMEEC is supporting two programs, Motor Up and Cool Choice, which offer financial incentives for equipment replacement for commercial customers. These programs are modeled after the programs offered under CEEF. The existing facility retrofit, a third program for commercial, industrial, and municipal sectors, offers customers technical and financial assistance to promote replacement of existing equipment with more efficient alternatives.

Demand response program. In an effort to reduce summer peak electricity use, CMEEC teamed up with EnerNOC, Inc., a large demand response and energy management solutions provider, to offer participation in the ISO-New England “Gap RFP” program. The program resulted in 2.5 megawatts of demand response registered with ISO-New England.

Energy efficiency financing. Municipal utilities have developed financing products that allow commercial and industrial customers to amortize energy efficiency project costs as a way to overcome the initial capital investment required for the projects. In 2007, ten customers took advantage of project financing.

CMEEC ACTIVITY LEVEL ANALYSIS

Table III-14 below provides the amounts collected by CMEEC as a result of the 2005 Energy Independence Act, as well as the programmatic spending levels.

Table III-14: CMEEC Energy Efficiency Collections & Spending		
	2006	2007
Collections	\$1,729,251	\$2,173,771
Spending	\$1,409,690	\$2,469,154
Residential	\$602,059	\$994,880
Commercial & Industrial	\$807,631	\$1,474,274
Source: CMEEC		

Table III-15 shows the 2007 participation levels for the various energy efficiency programs offered by the municipal utilities.

Table III-15: CMEEC Energy Efficiency Customers Served	
	2007
Residential	
CFLs distributed	210,000
Low Income Households	142
Existing Home Retrofit	100
Appliance rebates	850
Commercial/Industrial	
Commercial Equipment Replacement	11
C&I – Existing Facility retrofit	67
Source: 2007 Annual CMEEC report	

CMEEC SAVINGS AND BENEFITS ANALYSIS

Table III-16 lists the calculated savings from the energy efficiency measures implemented during the 2007 calendar year. Table III-17 demonstrates both the utility cost test and total resource cost test for residential and commercial programs.

Table III-16: Municipal Electric Energy Savings (2007)		
	Savings Measurement	
Sector	Annual MW	Annualized kWh
Residential	0.30	5,829,507
Commercial/Industrial	3.96	8,778,731
Source: Data provided to PRI by CMEEC		

Table III-17: Municipal Electric Benefit Cost Ratios (2007)		
Sector	Utility Cost Test	Total Resource Cost Test
Low Income Program	0.8	0.8
Existing Home Retrofit	1.2	1.1
Efficient Products	4.9	4.1
Commercial	6.7	2.5
Overall	5.7	2.7
Source: CMEEC 2007 Annual Report		

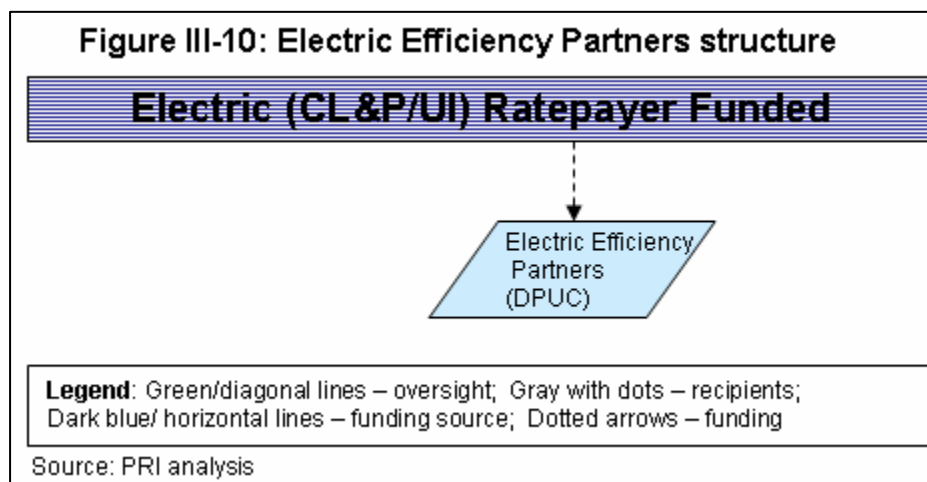
Electric Efficiency Partners Program (EEP)

The EEP program was established by section 94 of P.A. 07-242. The objective of the EEP program is to support enhanced demand-side management technologies²³ that conserve

²³ An example of an approved technology is a gas chiller which provides area air conditioning for industrial and commercial customers.

electricity and reduce electric distribution customers' electric demand in the state, specifically reducing peak demand. The EEP program is specifically established to support programs that for one reason or another would not receive funding from the CEEF. The legislation requires approved technologies to have a payback ratio of 2:1.

Figure III-10 shows the current funding and administrative structure for the Electric Efficiency Partners Program.



Funding. The legislation authorized spending for the EEP of up to \$60 million a year collected through a charge imposed on electric ratepayers. As of August 2008, funds had not yet been collected through the rates.

P.A. 07-242 stated that at least 75 percent of the appropriated annual ratepayer investment must be used for technologies. Additionally, an entity cannot receive funding through the EEP if the entity has received funding for the same project through the C&LM program funds.

Program administration. The legislation requires that the program be administered by DPUC. The department reviews project proposals, determines eligible technology measures and incentives, and also determines the criteria for certifying partners. A partner can either be a General Partner or a Vendor Partner. A General Partner will facilitate the EEP program, having the ability to recommend several technologies to a customer. A Vendor Partner, on the other hand, supplies only approved technologies. Partners are responsible for overseeing the site-specific EEP program projects and for reviewing project documentation while verifying project savings and cost-effectiveness. The partnership may end once the technology is deployed or it may be an ongoing process to help the end user deploy technologies at a time when the customer and the electric system can realize the greatest savings.

The legislation also required the DPUC to develop a low-interest loan program to help customers finance their share of any efficiency measures adopted. The department can offer these loans under an existing agreement with the Connecticut Development Authority (CDA), or

through an entity chosen by competitive bid. The financing agreements entered into with the CDA cannot exceed \$10 million.

Activity level. As of August 2008, DPUC had applications posted on its website for the two types of partners and a customer application. Thus far, 3 applications have been received for technologies of which 2 were approved, but no applications to be a general partner or a customer have been received.

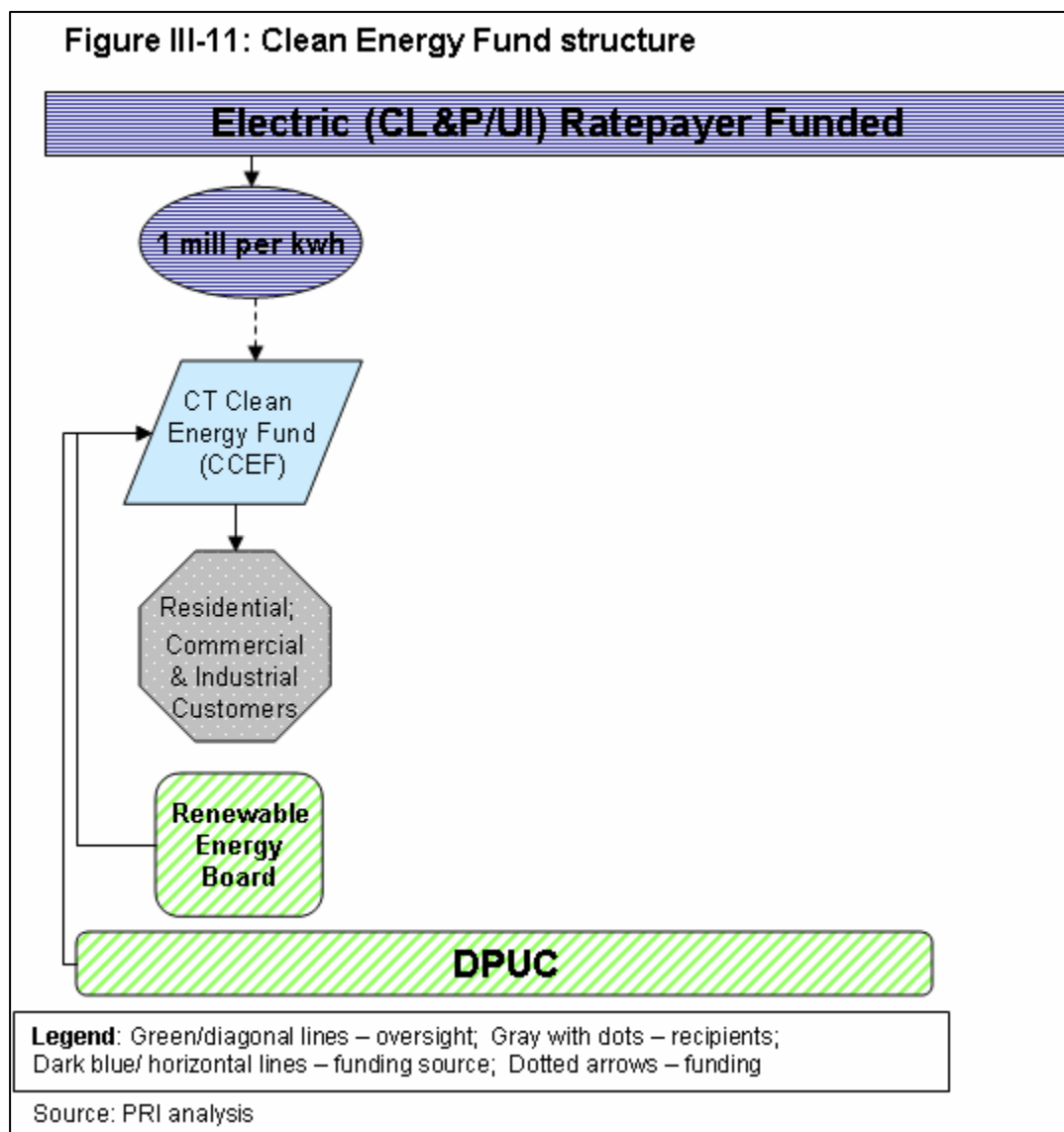
Connecticut Clean Energy Fund (CCEF)

The Clean Energy Fund, also known as the Renewable Energy Investment Fund, was established in 1998 as part of electric restructuring required by the state legislature (C.G.S. Sec. 16-245n). The purpose of the fund is to provide financing for alternative sources of energy. Its goals are to:

- 1) increase installed renewable energy capacity;
- 2) promote renewable energy technologies; and
- 3) build public awareness about renewable energy and make renewable energy sustainable.

The Clean Energy Fund programs did not become operational until 2000, and in its early stages from 2000 to 2004, the fund largely focused on investments (i.e., venture capital) for renewable energy.

Figure III-11 shows the funding structure as well as administrative and regulatory oversight for the Clean Energy Fund.



Funding. The Clean Energy Fund is financed by a surcharge of not less than .001 cent (1 mill) per kWh on ratepayers electric bills. This and some other rate surcharges are now combined into one public benefits charge on electric ratepayers' bills, but the amount allocated for the Clean Energy Fund is 1 mill. Other sources of revenue have been interest and payments for renewable energy credits (RECs) as described earlier in the CEEF funding. Table III-18 below shows the revenues and aggregate expenditures for the fund for FY 08 and FY 09.

Table III-18: CT Clean Energy Fund – Revenues and Expenditures FY 08 and FY 09 (000)		
	Revenues	
	FY 08	FY 09
Utility Customer Assessments	\$22,279	\$29,331
Interest on Deposits	\$4,234	\$2,025
Renewable Energy Credits	\$200	\$215
Total Fund revenues	\$26,722	\$31,571
	Expenditures	
Table III-18		
Staff Salaries and Wages	\$2,137	\$2,405
Benefits	\$1,120	\$1,297
Other	\$1,327	\$1,225
Total Operating Expenses	\$4,584	\$4,927
Grants and Programs	\$20,726	\$43,745
Total Fund Expenditures	\$25,310	\$48,672

The Clean Energy Fund staff indicates that the expenditures for fund programs are increasing dramatically because of increased program demand and funding allocated to projects already approved “in the pipeline”.

Program administration. The Clean Energy Fund is under Connecticut Innovations Incorporated (CII) a quasi-public agency, for administrative purposes only. However, the Connecticut Clean Energy Fund has its own executive director and staff, and reports to a 15-member Renewable Energy Investments Board, also known as the Connecticut Clean Energy Board.

Administrative oversight. The Clean Energy Fund is under Connecticut Innovations Incorporated (CII), a quasi-public agency, for administrative purposes only. However, the Connecticut Clean Energy Fund has its own executive director and staff, and reports to a 15-member Renewable Energy Investments Board, also known as the Connecticut Clean Energy Board.

Public Act 07-152 reconstituted the board, which had previously been advisory to the CII, and increased its membership from 11 to 15. The 2007 act added the heads (or designees) of the Office of Consumer Counsel, the Department of Emergency Management and Homeland Security, Office of Policy and Management and the Department of Environmental Protection, and 11 appointed members with various specified expertise and backgrounds – three by the Governor; one by each of the six legislative leaders; and two by the CII board.

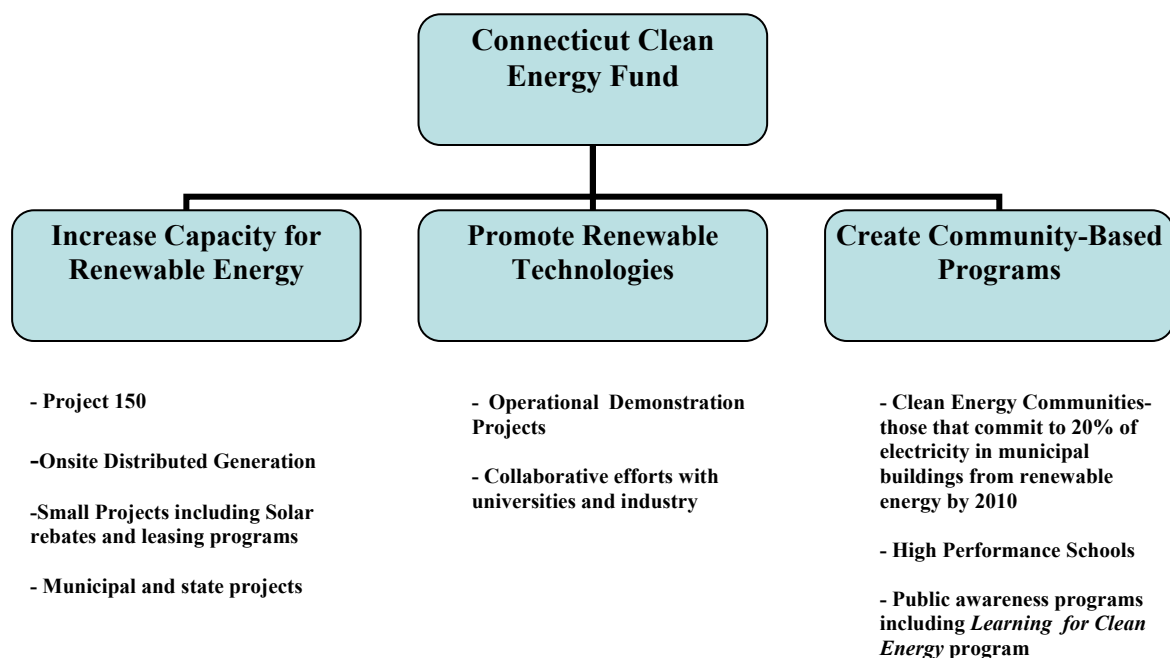
This act also gave the board significantly more authority, requiring that no expenditures from the fund be made without prior board approval, and also required the board to develop a comprehensive plan, hold public hearings on the plan and submit the plan to DPUC for action after its proceedings.

Regulatory oversight. Public Act 07-152 required that the Clean Energy Fund develop a comprehensive plan, receive public comment, and hold three public hearings on the plan,

before submitting it to the Department of Public Utility Control for approval. Up until 2007, the Clean Energy Fund developed a strategic plan but outside approval was not required. The Clean Energy Fund developed its comprehensive plan and submitted it to DPUC in April 2008. DPUC held a public hearing and comments were received, but DPUC had not made a final decision on the plan as of August.

Clean Energy Fund Programs

Figure III-12 below shows the Clean Energy Fund programs organized by Fund goals.



Program activity and results. Connecticut residents and businesses in the two major electric utility service areas are eligible for the programs. Specific information on the programs is available on the Clean Energy Fund website. Table III-19 below describes the programs, including eligibility criteria, the number that are completed or approved, and program expenditures on the program as of June 2008.

As with the Connecticut Energy Efficiency Program, the Clean Energy Fund also measures and reports on savings from the programs including (also shown in Table III-9):

- the electric savings (equivalent to households @ average of 700 kWh/month);
- avoided emissions (e.g., tons of carbon dioxide) resulting from its programs;
- lifetime avoided \$ congestion charges mandated by the Federal Energy Regulatory Commission

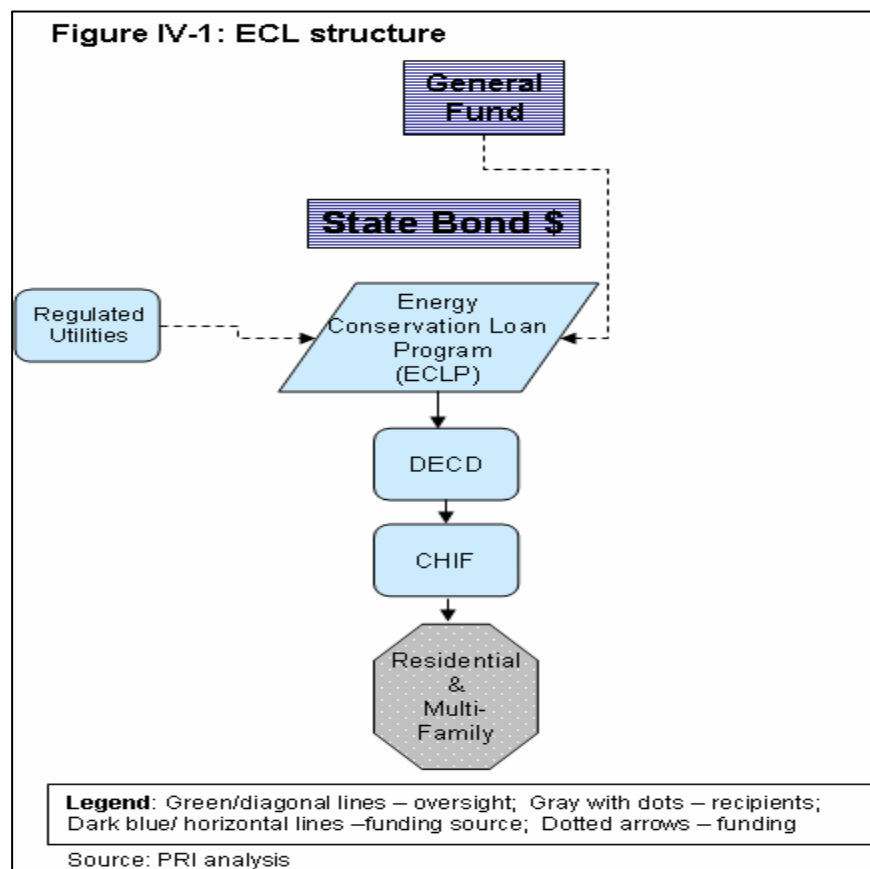
Table III-19. Clean Energy Fund: Program Activity, Expenditures and Results to Date			
Program	# of projects	Expenditures to Date	CCEF-reported results (over lifetime)
On-site Renewable Distributed Generation	89 projects	\$56.3 million	Electricity saved= 4,046 homes FMCC avoided= \$2.8m Tons carbon dioxide avoided =107,000
Project 150 – program is legislatively mandated. Requires utilities to enter long-term electricity purchase agreements (EPAs) with projects that receive CCEF funding. EPAs must purchase at least 150 megawatts of Class I renewable energy	7 projects	\$5.8 million	Electricity saved= 88,413 homes FMCC avoided= \$81.4m Tons carbon dioxide avoided =4.9m
Residential and small solar photovoltaic (PV) systems Use a pre-qualified installer -- 23 approved installers Equipment must be new, meet certain standards, and produce no more than what has been the customers' annual electric consumption Rebate approval must be issued before work begins – Typically rebates are half the cost (1/2 of \$44,000) No income limits Eligible for sale renewable energy credits and eligible for personal income tax credit (30% of cost, up to \$2000) Solar lease program New program begun in July 2008 To help finance the half of the solar installation not covered by the rebate CCEF works with lender to offer lease arrangements – typically about \$120 a month Income limits of 150% of MFI by area – family of 4 in Hartford area -- \$121,650	529 projects	\$11.9 million	Electricity saved= 290homes FMCC avoided= \$321,471 Tons carbon dioxide avoided = 28,940
Operational Demonstration Projects	7 Completed 3 in Progress	\$11.7 million	
Community-based programs	-75 towns participate in 20% by 2010 -35 grants issued -160 PV systems to 28 towns	\$3.3 million	
Source: Clean Energy Comprehensive Plan –FY 09-10, and CCEF website			

State Funded Programs

This section discusses energy efficiency programs that are primarily supported with state monies, either through state-issued bonds, the General Fund, or in some cases, part of the proceeds from a particular tax, such as the gross receipts tax on petroleum products. As with the funds discussed in the previous section, there is overlap in funding mechanisms, and the program administration lines are not always clear and definitive. The programs discussed in this section include: the Energy Conservation Loan Fund; the recently established furnace rebate program; the fuel oil conservation program; and programs targeted to energy efficiency in state facilities.

ENERGY CONSERVATION LOAN FUND (ECL)

The conservation loan funds were established in 1979 (C.G.S. 16a-40a) to provide financing at below market rates to single family and multi-family residential property owners for the purchase and installation of cost-saving energy conservation improvements. Figure IV-1 shows the funding and administrative structure of the program.



Funding. The Department of Economic and Community Development (DECD) funds the program through revolving loans and the issuance of bonds in principal amount not exceeding in the aggregate \$23.7 million. Annually, the proceeds from the loan repayments amount to approximately \$2 million. At its August 2008 meeting, the State Bond Commission issued an additional \$2 million for the fund, and the legislature allocated another \$2 million in General Fund surplus to the program at its August 22 special session.

Program administration. DECD contracts with the Connecticut Housing Investment Fund (CHIF) to administer the program. CHIF is a private, nonprofit organization established to finance affordable housing and neighborhood revitalization projects throughout Connecticut.

Since 1979, CHIF has lent over \$84.6 million in energy conservation loans to all 169 towns in the state. Approximately 13-15 loans are closed each month with an average loan amount of \$10,000 in 2005, increasing to \$12,000 in 2008. The low interest rate loans to households are subsidized by the state's major utilities based on a formula outlined in C.G.S. Section 16a-40b(f). In FY 08, the gas and electric utilities paid close to \$400,000. The principal from the loans is deposited into the fund, approximately \$1.5 million a year, with the interest going into the General Fund.

CHIF does not have an annual budget for marketing activities. In 2006, CHIF spent \$2,000 on special marketing activities to promote several new aspects of the ECL program but since then has not had funds for marketing activities. The top three ways in which borrowers learn about the ECL program are by: 1) word of mouth; 2) referrals from contractors; and 3) the CHIF website.

Eligibility. Connecticut single family homeowners (1-4 units) with income up to 200 percent of the median family income (MFI)²⁴ by geographic area and family size may borrow between \$400 and \$25,000 with a maximum loan term of 10 years. Multi-family property owners may borrow up to \$2,000 per unit with a maximum of \$60,000 per building for a period of 10 years for eligible improvements.

In order to qualify, the client must have a debt load less than or equal to 39 percent of income, which is calculated based on housing expenses, loan obligations, revolving charges, and monthly income. In 2007, 203 applications were rejected. The most common reasons an application is rejected include: poor debt to income ratio, derogatory credit history, bankruptcy, and tax liens.

CHIF also offers a program for senior citizens to prevent them from going without heat. If a resident has a furnace that has been red tagged – meaning it does not function-- CHIF will offer a loan to replace or fix the furnace regardless of credit history. Customers receive a three year deferred loan, payable upon the sale of the house. CHIF also offers a three year deferred loan if a homeowner experiences a hardship due to divorce, death, or a medical reason. After three years, CHIF will reevaluate the homeowner's financial conditions for repayment.

²⁴ The income eligibility levels were increased in the August 2008 Special session to 200 percent of area median income. For a household of four this equates, for example, to \$95,550 in Waterbury MSA and \$176,700 in the Stamford-Norwalk MSA

There are certain types of home improvements that qualify for a loan. CHIF classifies improvements into two categories: Type 1 and Type 2. Enumerated below are examples of the improvements covered by the two programs.

Type 1 Improvements:

- Energy efficient insulation
- Replacement thermal windows and doors
- Replacement furnaces and boilers
- Replacement hot water heaters
- Secondary heating systems using a source of heat other than electricity
- Conversion of a primary electric heating system to a system using a source of heat other than electricity if home was constructed prior to 1/1/80
- Vinyl or aluminum siding for existing eligible structures
- Replacement roofs

Type 1 Rates	
% Median Family Income (MFI)	Interest Rate
50% MFI	0%
51-150% MFI	3%

Type 2 Improvements:

- Replacement central air conditioning systems
- Heat pumps or solar systems and passive solar additions

Type 2 Rates	
% Median Family Income (MFI)	Interest Rate
50% MFI	1%
51-80% MFI	3%
81%-150% MFI	6%

Recent restrictions. The August 2008 Special Session legislation allocating funding to the ECL program appears to limit the zero percent loans to the purchase of very high efficiency boilers and furnaces -- natural gas furnaces or boilers that meet or exceed federal ENERGY STAR standards and propane and oil furnaces and boilers that are not less than 84 percent efficient. Committee staff is exploring whether this is just codifying a practice that has been in place, or whether this will substantially alter the program.

ECL ACTIVITY LEVEL ANALYSIS

A majority of the loans are provided to single-family households as demonstrated in Table IV-1. The number of loans issued increased by 35 percent between 2005 and 2006 but then dropped 17 percent in 2007. Since the program started in 1979, over 21,000 loans have been issued.

Table IV-1. New Loans Processed and Amounts for Calendar Years 2005-2007						
Loan type	Calendar Yr 2005		Calendar Yr 2006		Calendar Yr 2007	
	# loans	Total Funded	# of loans	Total Funded	# of loans	Total Funded
Single Family	161	\$1,553,545	252	\$2,188,727	202	\$1,973,818
Multifamily	4	\$65,912	2	\$59,527	9	\$267,925
Total	165	\$1,619,457	254	\$2,248,254	211	\$2,241,743

In each of the past three years, loans for heating systems (35-40%), thermal windows (30-35%), and roofs (20-25%) were the most common type of improvements funded by the program. However, in the past year CHIF has seen an increase in the number of requests for replacing heating systems due to the rise in energy costs.

Over the past three years, the number of loans between 30 and 120 days delinquent has ranged from a high of 44 in 2005 to a low of 34 in 2007, representing 4.7 percent and 3.6 percent respectively of the total loans outstanding in those years. DECD and CHIF will work with the borrowers of loans that are over 120 days outstanding and work out a feasible repayment schedule.

FURNACE REBATE PROGRAM

The furnace rebate program was established during the 2007 legislative session as part of P.A. 07-242 and amended during the August 2008 Special Session. As a result of legislation, between July 1, 2007 and June 30, 2017, the Office of Policy Management must provide rebates of up to \$500 for the purchase and installation of high efficiency home heating equipment or for the repair and upgrade to a high efficiency heating system.

Funding. While the initial rebate program was established in 2007, it was not until the August 2008 State Bond Commission meeting that \$5 million in bonds was issued for the program. As a result of the August 2008 Special Session, the legislature appropriated an additional \$3 million in funding for the furnace replacement program and an additional \$2 million for furnace/boiler repair and upgrades.

Program administration. The program is run through the Energy Unit of the Office of Policy and Management. All information, including applications and guidelines, can be found on the OPM website.

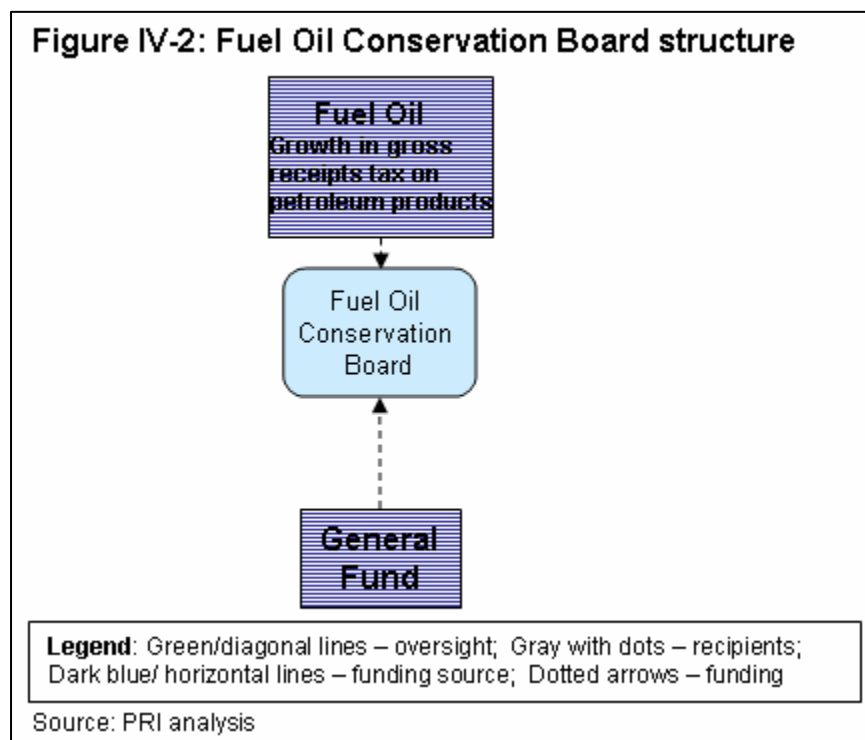
According to P.A. 07-242, the ECMB must report to the Energy and Technology Committee on the cost-effectiveness of the rebate program by January 1, 2009.

Eligibility. To be eligible for the rebate, the furnace or boiler must be installed between July 1, 2007 and April 15, 2009. A replacement natural gas furnace/boiler must meet or exceed Federal ENERGY STAR standards. A replacement oil or propane furnace/boiler must be at least 84 percent efficient. Rebate levels are based on an applicants 2007 filing status for federal income tax and state adjusted gross income (AGI), and are reduced by 10 percent for every \$10,000 the applicant's income exceeds the category threshold. For example, to receive the full \$500 rebate, a single filer's AGI cannot exceed \$56,500, and the AGI for married joint filers cannot exceed \$100,500 to be eligible for the full rebate.

Residents can also qualify for a rebate of up to \$500 (depending on income), if they repair or upgrade their existing boilers or furnaces on or after August 1, 2008, to improve the efficiency. The rebate only applies to residences of up to four dwelling units.

FUEL OIL CONSERVATION BOARD

More than 50 percent of Connecticut households heat with home heating oil; those residents were not the target population of the programs and services offered by CEEF, which focuses primarily on electric use. Recognizing the gap, the legislature through P.A. 07-242 established a 13-member board to administer energy efficiency and conservation programs targeted at oil heating customers. All appointments must come from groups specifically designated in the legislation, including fuel oil dealers and the heating, ventilation, and air conditioning trades, as well as environmental groups, and two representing residential customers, one of whom represents low-income residents. Figure IV-2 shows the funding and administrative structure for the Fuel Oil Conservation Board.



Operational administration. P.A. 07-242 established very specific directives and timeframes for its organization and operations. The board must establish itself as a federally tax exempt nonprofit (501c) organization, and issue an RFP to select an entity to administer the programs. By November 1, 2007, the board was required to contract with the selected administrator for up to three years.

Oversight. Once the administrator is selected, a comprehensive plan is required to be developed by March 1, 2008, and submitted to the Energy Conservation Management Board for its approval. The board advises and assists the administrator in the development of the plan and its implementation. The Office of the Attorney General is also required to select a third party to audit the activities of the board on a biennial basis.

Funding. The funding for these conservation initiatives is to come from the excess in the petroleum products gross receipts tax over the 2006 revenue, subject to a \$10 million cap, decreasing to \$5 million in 2009, and annually thereafter. The funds are to go into a fuel oil conservation account, which is a separate nonlapsing account within the General Fund, but any monies not spent are transferred to the General Fund.

Because of funding issues around when the Comptroller could allocate money into the fuel oil conservation account, the board had no funding until the 2008 June Special session when the legislature authorized the Comptroller to deposit \$2.5 million in the account, with the remainder going into the account by October 1, 2008. In addition, in the August Special Session, \$7 million was authorized in surplus General Funds to establish an energy audit program within OPM for persons who heat their homes with oil or another non-regulated source. The monies would cover the costs of the audit -- beyond a \$75 required fee from the customer- performed by qualified oil companies and other vendors between September 1, 2008 and June 30, 2009.

Activities. The fuel oil board met earlier in 2008 and issued an RFP in February 2008 to select an administrator, but the board did not meet from May through September. As of September 2008, a board subcommittee had reviewed the responses to the RFP for an administrator and the board recommended the subcommittee negotiate a fairly short-term contract with the subcommittee's final candidate. The board is also considering a proposal from the CAP agencies that already serve persons in the low-income energy assistance programs (discussed in the next section), and who are already known to need furnace repairs and replacement, or are awaiting other residential conservation measures.

ENERGY EFFICIENCY AND CONSERVATION IN STATE BUILDINGS

Government buildings are a significant source of energy consumption. Focus on energy efficiency in state government facilities has always been a concern, but has become more acute as the costs of energy have increased. Attention to the practice of energy efficiency by state governments is one of the eight areas where states are judged by the ACEEE on the state energy efficiency scorecard. The national organization ranks and awards states on their model efficiency programs, including how well they practice energy efficiency in state facilities, transportation and procurement practices or "leading by example" (LBE) as the category is labeled.

As cited earlier in this report, in 2006 Connecticut received top ranking along with California and Vermont in its overall score, but it was in the middle of the state rankings with a score of 1 out of a possible 3 in this "lead by example" category. Sixteen states achieved a higher ranking. Common deficiencies in state programs are:

- *Limited knowledge.* Information sharing and learning from the experiences of other states can help break the barrier of limited knowledge.
- *Insufficient funding.* Innovative financing mechanisms that are already being used by many states can fund some of the LBE efficiency programs.
- *Limited support and staff availability.* Identifying a "champion" in each agency to ensure that LBE programs are implemented.

The ACEEE report suggests some key policies that can improve a state's energy efficiency practices, and hence its overall program. Some of those are:

- using energy efficiency performance criteria, including EPA's ENERGY STAR requirements;
- establishing new and existing building energy efficiency targets and savings goals;
- implementing procurement requirements, such as ENERGY STAR appliances, energy efficient equipment and vehicles;
- identifying and using innovative financing mechanisms (e.g., energy savings performance contracts that require the savings cover the cost of improvements);
- adopting a tracking and reporting system for agency-by-agency data collection;
- assigning an agency-level energy manager to be accountable for progress.

CONNECTICUT'S EXPERIENCE

In 2007, costs for energy in Connecticut state buildings were approximately \$123 million. While less than 1 percent of the state budget, it is a significant operating cost. However, the attention and priority to energy efficiency and conservation programs is episodic and results are spotty, as the discussion below indicates. For the most part, state government's energy costs are an operating expense paid for from the General Fund. Capital improvements to state buildings, including installation of energy efficiency measures, are mostly supported with state bond funds.

In the 2001 June Special session, the legislature required that \$12 million be diverted from the Connecticut Conservation and Load Management Fund (now known as the Connecticut Energy Efficiency Fund) to a non-lapsing account for the Department of Public Works (DPW) for energy conservation programs in state facilities. DPW recently issued two reports on the status of those funds and the projects, which are summarized in the two tables below. The first table summarizes the status of projects that are being funded without utility matching funds and the second table summarizes the status of projects that will tap into the CEEF Small Business Energy Advantage Program.

Table IV-2. Status Summary of Projects Using \$12 Million Diverted from CEEF to DPW: No Utility Matching Funds

Project Status – 38 potential projects	DPW Funds	Agency Contributions
11 completed	\$3.5 million	\$700,000
18 underway; not yet complete	\$3.83 million	\$150,000
1 project complete	No DPW funding	\$310,710 (OPM)
1 project for solar PV	\$150,000	Applied to Clean Energy Fund (\$450,000)
5 projects cancelled (bidding and contract issues, too cost prohibitive, or not enough savings projected)	N/A	N/A
1 project “on hold” (bidding issues)	N/A	N/A
Total	\$7.3 million	
Source: PRI Staff Summary of DPW July 2008 status report		

Table IV-3. Status Summary of Projects Using \$12 million Diverted from CEEF to DPW: With CEEF Funding

Project Status – 23 potential projects	DPW Funds	CEEF Small Business Program Funds
3 completed/substantially completed	\$264,248	\$261,685
3 underway	\$135,199	\$124,196
5 about to start	\$214,104	\$227,796
6 on hold, pending CL&P funding (1 project does not have cost figures yet)	\$129,620 (5 projects)	\$93,185
6 on hold – DPW review or other reasons	\$489,996	\$302,243
Total	\$1,233,167	
Source: PRI Staff Summary of DPW July 2008 status report		

Since the \$12 million was dedicated seven years ago, the identification and completion of projects has been slow; only 35 projects have been completed or are underway, with about \$8.5

million spent or committed. One possible contributing factor is that responsibility for oversight and implementation of state facility energy management appears split between the Office of Policy and Management and the Department of Public Works. Further, there is only one and a half FTE staff at the Department of Public Works to oversee energy efficiency projects.

P.A. 03-132. Other attention has been given to energy management and efficiency in state buildings. In 2003, P.A. 03-132 was passed to implement the recommendations of the 2002 program review study on Energy Management by State Government. Three primary recommendations in that legislation were: 1) a mandate that the Office of Policy and Management require each state agency to identify methods available to reduce energy costs and the feasibility of implementing those methods; 2) that the Governor's budget include a line-item breakdown of each agency's energy expenditures and 3) that OPM and DPW establish a pilot program that selects a state facility or complex to be covered by an energy performance contract with a private vendor.

In response to the legislation, OPM did survey all state agencies and in February 2004 released a report entitled *Energy Management in State Facilities: A New Direction*. That report identified strategies for improvement including development of energy consumption monitoring data by building and by time of day, and linking that information to CoreCT (state government's automated business system for personnel, bill payment etc.) so that use data would automatically be reported at the time of bill payment.

However that linking has not yet been done, both because of system issues and because the biggest state government user of energy, higher education, is not on the CoreCT system. Thus, sound data on energy consumption in state facilities is difficult to obtain. Partially due to the lack of system capabilities, the budget reporting of energy expenses by agency has not been done.

The 2004 OPM report also identified the need for energy benchmarking in state buildings that compares their energy profile to similar buildings, to better target those state facilities most in need of energy improvements. In 2005, OPM issued a memorandum of agreement with the Institute for Sustainable Energy to conduct this benchmarking effort. To date, 110 buildings have been benchmarked, and some have been identified for energy efficiency project outlined in Table IV-3 and IV-4 above.

However, the second recommendation to pilot a private vendor energy performance contract was never implemented. Thus, no results can be analyzed to assess whether this might be an opportunity for state government to execute energy efficiency in a cost-effective way.

Governor Rell directive. In mid-December 2004, following significant increases in electric rates, Governor Rell directed the Department of Public Utility Control, the Office of Consumer Counsel, and the Energy Conservation Management Board to identify opportunities to reduce electric consumption at state facilities. The focus was to reduce the impact of increases in electric rates on the state budget.

The working group issued a report in February 2005, stating "there are considerable opportunities for savings that remain untapped". The report cited that a major gap was that the

state had no comprehensive energy efficiency plan for its agencies. The report proposed 32 action steps that could be taken to reduce electricity consumption, many of which, according to the report authors, could be implemented quickly and would involve little or no upfront financial investment relative to the savings that could be achieved. The 32 proposals for change focused on the following:

- Directing state agencies to contact electric utilities to ensure they are receiving the most beneficial rate or using the rate schedule that provides the lowest overall cost;
- Creating a single point of contact for energy efficiency at all state agencies, staffed by personnel with expertise in energy efficiency;
- Assigning responsibility for energy efficiency to management at each state agency;
- Instilling an energy efficiency ethic among state employees;
- Developing statewide energy efficiency standards and practice for agencies;
- Establishing state energy reduction goals, suggesting a 10 percent reduction in 2005 and an additional reduction of 5 percent in 2006;
- Using incentives to sustain consumption reduction like embedding a portion of the savings in the agency budget;
- Participating in load response programs; and
- Establishing a state government energy plan, and preparing an energy efficiency scorecard for every state building and the equipment it contains.

However, the report did not clearly designate any agency or staff as being responsible for implementation. No status report on the results has ever been issued, and while it is clear that many of the steps have not yet been implemented, progress is being made in some areas. For example, state government:

- participates in load response programs;
- has recently begun using the electricity markets and its clout as a large purchaser to obtain favorable rates for state government's energy supply, realizing considerable financial savings; and
- issued an energy plan for state buildings in 2007.

Load response. P.A. 05-01, the Energy Independence Act, established several initiatives to reduce electric power supply costs caused by inadequate transmission and generation infrastructure in Connecticut, especially in the southwestern region of the state. Many of the financial incentives have supported installing onsite electric generation so that demand can be reduced off the New England electric grid during times of peak demand. Since 2005, 11 state agencies at 40 different sites have been participating in these load response programs, which generate about \$1.7 million in payments to state government from ISO-New England, the region's independent electric grid operator.

State energy plan. The state has also developed a state energy management plan for state facilities. The plan, which was also a requirement of P.A. 07-242, was developed by the Office of Policy and Management Energy Unit and issued in September 2007, modified in November 2007. The plan provides anticipated savings and efficiencies that could be realized around certain proposals, including expansion of the load response program discussed above.

One of the tasks outlined in the plan is to develop a master contract with the utilities to govern state agency participation in ratepayer-supported CEEF and CCEF programs. In the early years of the Connecticut Energy Efficiency Fund, the state had accessed the fund frequently. Between 2000 and 2004, 326 state projects received financial incentives from the Connecticut Energy Efficiency Fund totaling over \$7.8 million.

However, in the wake of ethics scandals, Governor Rell issued a series of Executive Orders during 2005 and 2006 requiring contracting reforms in state government. It was determined that the state access to the Connecticut Energy Efficiency Fund would be affected and that more formal contracting would be required. The provisions for the master contract have been developed over the past year and a request for proposals has been issued by the Department of Administrative Services. Responses are due on September 23, 2008.

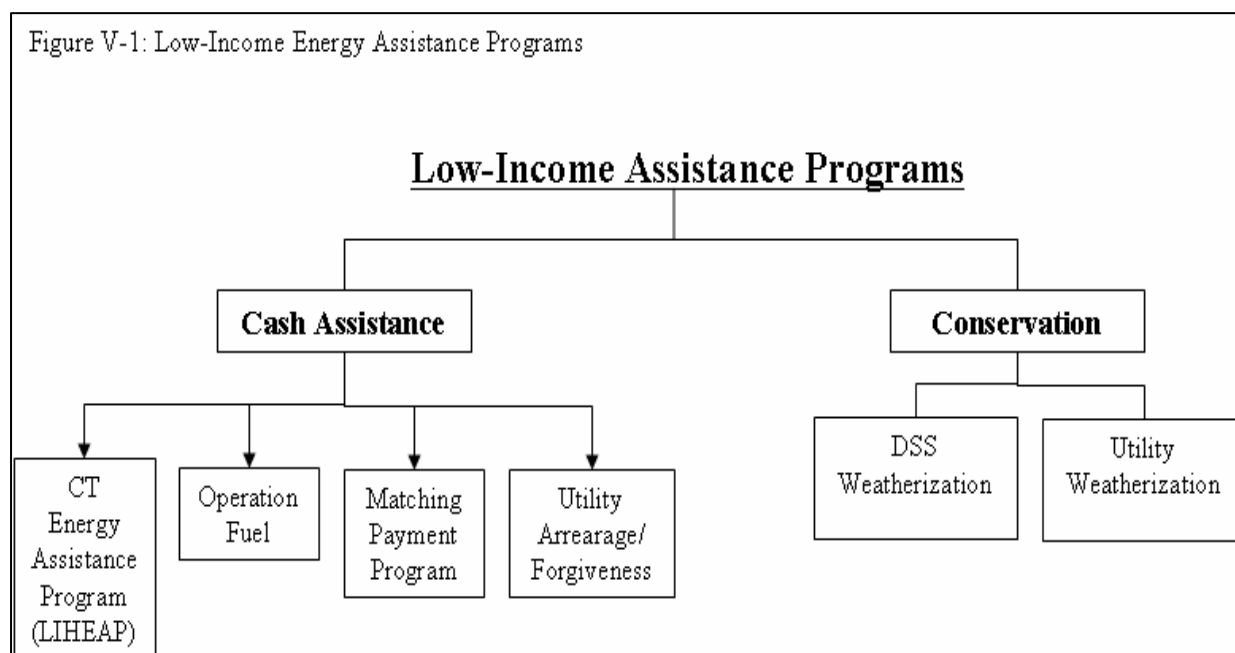
During the time the contract was being developed, the state's participation in the CEEF has fallen dramatically. United Illuminating indicates that the only 32 state projects participated in its programs during 2005-2008 (to date), and received funding of about \$112,000, while CL&P stated that for the 2005-2007 calendar years, it funded 60 state projects for a total of about \$1.1 million.

Since the Clean Energy Fund is within a quasi-public state agency, the state would not have faced similar contracting issues with that fund, but only two state agencies have used, or attempted to use it since its inception. DOT received \$140,000 for a solar system and DEP has applied to the fund for \$450,000 for a solar system. Public Act 07-242 authorized \$30 million in bonds for the Clean Energy Fund to support the costs of renewable energy and combined heat and power projects in state buildings that could meet certain design ratings. However, the State Bond Commission has not issued any bonds for that purpose.

Low-Income Assistance Programs

Energy costs are taking a greater share of everyone's household budget, and lower-income residents are especially hard hit. Often these households use more energy as an ill, disabled, or elderly person lives in the house, and thus the unit is occupied for more hours, and the building structures are frequently older and inefficient. Since lower-income households pay the same energy prices, it takes a greater portion of their household income.

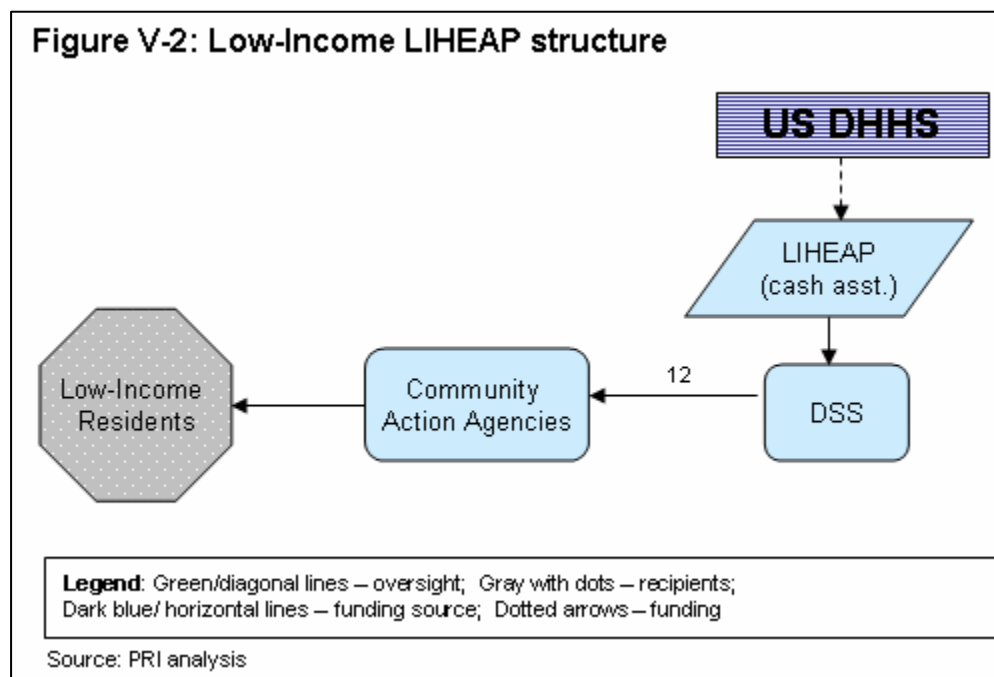
As Figure V-1 demonstrates, energy assistance for low-income households is provided as cash assistance or through conservation measures. Both types of programs are supported both with utility ratepayer funding and with federal and state funds, as well as charitable donations. This section presents information on all energy assistance programs focused on low-income residents, including how the programs are administered, the eligibility requirements, how they are funded, and program activity levels.



Low Income Home Energy Assistance Program (LIHEAP)

The major energy assistance program for low-income households is known as the Connecticut Energy Assistance Program (CEAP), which is funded almost exclusively with federal dollars. Those federal dollars come to Connecticut by way of a block grant through the Low Income Home Energy Assistance Program (LIHEAP), a federal Department of Health and Human Services initiative begun in 1980.

The purpose of the program is to *assist* low-income households with their heating (or cooling) expenses. The program clearly states, however, that the purpose is *not* to pay for *all* of a household's energy costs. Figure V-2 below shows how the program is implemented.



Funding. As noted, the Connecticut program is primarily funded through a federal block grant from the U.S. Department of Health and Human Services known as the Low Income Home Energy Assistance Program. This is not an entitlement program, so once the allocation of the block grant runs out the state must fund the program or terminate enrollment. Funding is based on the federal fiscal year and for FFY 08 was about \$65 million dollars, which included a federal contingency allocation of almost \$17 million. Table V-1 below shows the aggregate expenditures for FFY 07, the latest data available on expenditures.

Table V-1. Connecticut Energy Assistance Program – FFY 07	
Client Asst. Benefits	\$54,881,921
CAP Agency administration	\$4,244,317
Assurance 16 (case management)	\$1,000,000
Federal charges	\$12,778
DSS administration	\$230,000
Total	\$60,369,016
Source: CEAP 2007 Report to Legislature	

Operations and administration. The Department of Social Services is the state agency designated to receive the federal block grant funding, but DSS contracts out the actual operation of the program to the 12 Community Action Agencies (CAPs), the anti-poverty agencies created by federal law in the 1960s.

The CAP agencies also rely on other volunteer programs, town agencies, fuel banks, and 2-1-1 to provide information and to take applications, but the CAP agencies make the eligibility determinations. The CAP agencies make the payments directly to the utility or fuel oil deliverer, and while payments from the program are not issued before November 1, over the past two years applications are accepted beginning in August to make the application and approval process less compressed.

The CAP agencies have been administering the Energy Assistance Program since its inception, and this is a common model for delivery of the LIHEAP program throughout the country.

Oversight. The Department of Social Services must develop a plan for the Connecticut Energy Assistance Program. The plan must be submitted to the Office of Policy and Management, and a legislative public hearing on the plan is held prior to its approval. The Low Income Energy Advisory Board, an 18-member board created by the legislature in 2005, also advises on the plan. The board is made up of both representatives of state agencies and non-profit agencies that serve low-income and elderly residents, including DSS, OPM, DPUC, and the Office of Consumer Counsel, as well as utility companies and home heating oil deliverers. The board is mandated to advise and assist DSS and OPM in developing and implementing energy assistance and weatherization programs for low-income residents, and additionally to advise the DPUC on the impact of utility rates and policies.

Eligibility criteria. The criteria for energy assistance are based on income, with benefit levels dependent on poverty level categories. For most households, the top income level to be eligible is at 150 percent of the federal poverty level -- for a family of four, that income is \$2,581 a month, or \$30,972 a year. There is a component of the program, the contingency heating assistance program, (CHAP) that provides limited assistance to households with higher incomes.

Connecticut's program also applies an asset test. Homeowners may not have liquid assets exceeding \$10,000 (or the amounts over that will be added to their annual income) and renters may not have liquid assets exceeding \$7,000. Table V-2 shows the income category and benefit level for low income and elderly households. (Households with elderly and disabled members are treated differently, explained below).

Basic benefits. All households that meet these income and asset requirements, regardless of the heat source, may receive the basic payment indicated *once* during a heating season. The table below shows the benefit structure in place before the 2009 plan was approved that increased benefits that are currently effective, after legislative committees approved the new plan in early September 2008. During the August Special Session, the legislature allocated \$35 million of the state General Fund surplus to support these increased 2009 benefits.

Table V-2. Connecticut Energy Assistance Plan – Basic Benefit Structure						
Income as % of federal poverty level	Basic Heat Benefit (primary heat only; benefit paid to vendor)				"Renter" Benefit (heat included in rent & rent exceeds 30% of gross income; benefit paid to household) No differentiation of vulnerable and non-vulnerable	
	Vulnerable (household includes member who is disabled, 60+ or under 6 years)		Non-vulnerable			
	Pre-2009 Plan	Post-2009 Plan	Pre-2009 Plan	Post-2009 Plan	Pre-2009 Plan	Post-2009 Plan
0%-100% (CEAP)	\$ 675	\$925	\$ 635	\$885	\$ 270	\$455
101%-125% (CEAP)	\$ 580	\$830	\$ 535	\$785	\$ 255	\$440
126%-150% (CEAP)	\$ 485	\$735	\$ 435	\$685	\$ 240	\$425
150%-200% (CEAP Elderly & Disabled)	\$ 400	\$650	Not Applicable		(No "renter" benefit)	
150% FPL - 60% state median income (CHAP)	\$300	\$625	Not Applicable			
Source: Connecticut Legal Services, Inc, and PRI analysis of the 2009 CEAP plan legislative amendment.						

Additional benefits. Once a household has received the basic benefits, which are outlined in the table above, the household may be eligible for additional assistance. If the house is heated with a deliverable fuel, like home heating oil or propane, and not a utility, the household may receive a one-time crisis benefit, if the application is made by mid-March. The crisis benefit had been \$400 for all CEAP households and \$200 for CHAP households, but those amounts will increase to \$565 for both program components in the 2009 plan.

If crisis benefits are also exhausted, households with deliverable fuels may be eligible for two “safety net” benefits, which had been \$400, but will increase to \$625 effective with the 2009 plan. The household must be unable to pay for fuel, have no other heated shelter option, apply before mid-March and be interviewed by CAP agency staff. Finally, if a household is a “vulnerable” one (defined in table) the household may receive an additional payment, which had been \$400 but will also increase to \$625. Thus, for the poorest “vulnerable” households that heat with a deliverable fuel, the maximum amount available through the low-income assistance program is \$3,365.

There are also other much smaller elements of the CEAP program that offer eligible-households assistance with heating conservation measures such as cleaning and tuning their heating systems, or, if necessary, furnace repair or replacement. Those numbers are provided in the weatherization section below.

Program activity. Table V-3 below shows households served and expenditures for each of the components of the LIHEAP program. Thus, 84,757 unique households received basic benefits, with fewer households receiving other components of the program

Table V-3. Low Income Energy Assistance – Program Components: Activity and Expenditures 2007

Basic Benefits Program		
Applications Received	97,791	
Applications Approved	84,757	
	Basic Benefits Program	
	Households	Expenditures
CEAP	65,229	\$37,240,447
CHAP	17,617	\$5,328,119
	Crisis Benefit Program	
CEAP	18,126	\$6,222,753
CHAP	5,767	\$988,956
	Rental Assistance	
CEAP	1,911	\$506,415
	Safety Net	
CEAP	8,585	\$3,337,753
	Furnace Repair/Replacement	
	403	\$1,126,528
	Conservation Measures	
	940	\$130,950
Total Units – all programs	118,578	\$54,881,921
Source: DSS 2007 report		

Fig. V-3. Number of CEAP Energy Asst. Households: by Fuel Type 2007

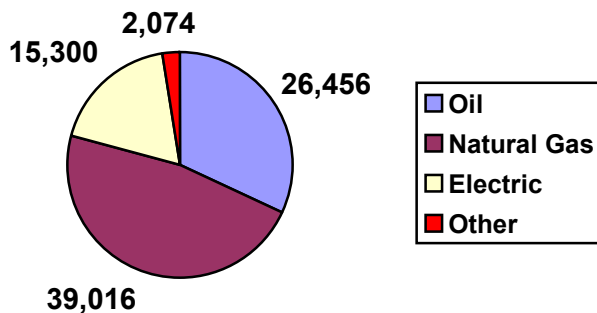


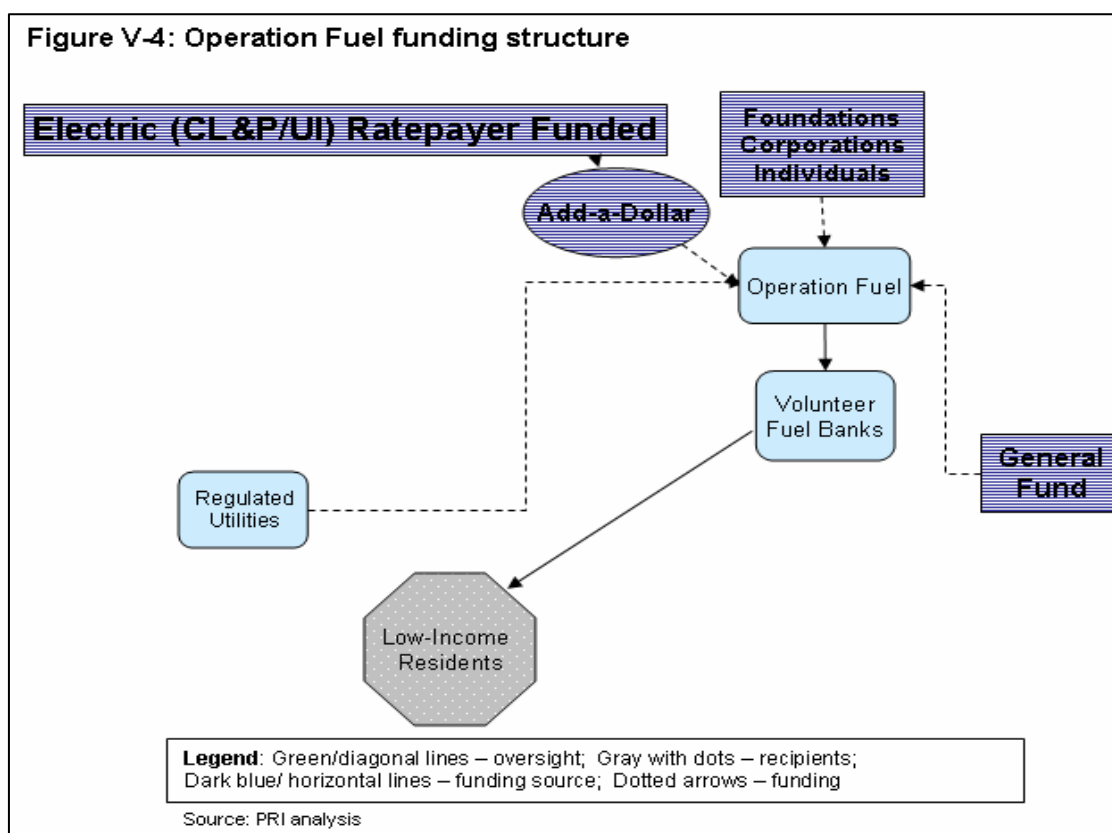
Figure V-3 shows the number of energy assistance households by the type of fuels used to heat their homes. Almost half (47%) were heated with natural gas, about 32 percent heat with oil, and about 18 percent with electricity. This is somewhat different than the ratio of Connecticut households overall by heating source, where more than half heat with oil. This is most likely due to the fact that more renters (72%) than homeowners (28%) are receiving cash energy assistance, and more renters use gas and electric heat.

Vendors. Clients in the energy assistance program who heat with oil may use any heating oil delivery company as long as the company is registered with the Department of Consumer Protection, and has a filed a vendor document with the Department of Social Services. DSS pays vendors a discounted off the average daily price at New Haven harbor for heating oil (a 31 cent reduction), but adjustments are made based on the county in which the delivery is made to allow for costs of transporting and delivery. Propane and kerosene deliveries are paid at

retail levels. Because of the discount in what vendors are paid from DSS, there was concern about whether there would be a drop in the number of vendors overall or by area. However, committee staff was unable to obtain current vendor information from DSS since the agency was not accepting vendor filings until after the plan was approved, which just happened in early September.

OPERATION FUEL

This program was established in 1977 to provide assistance to families, the elderly, and disabled who do not qualify for state energy assistance. Its mission is to serve households with incomes from 151 percent to 200 percent of the federal poverty level and have a documented crisis such as an illness, unemployment, non-support, or death of a partner. Figure V-4 demonstrates the funding mechanisms and structure for Operation Fuel.



Program administration. Operation Fuel delivers the energy assistance through 63 statewide fuel banks that run the program voluntarily and receive no compensation for administrative costs. These organizations include town social services departments, community action agencies, religious organizations, and non-profit organizations. Unlike the state administered energy assistance, Operation Fuel pays retail prices for the fuel it provides. In FY 07, Operation Fuel paid an average of \$2.61 for a gallon of oil, whereas in FY 08 it paid an average of \$3.35 for a gallon of oil. Operation Fuel's operations, funding, and reporting are conducted on a state fiscal year basis.

The maximum allowable grant per household was \$400 in FY 2007 and \$500 in FY 2008. The fuel banks operate from December 1 through May 31 if enough funds exist to keep operating. In 2008, Operation Fuel continued to operate through the summer providing grants of up to \$250 to help customers with energy bills.

Funding. Operation Fuel is supported by a variety of funding mechanisms. Its original funding source was established in 1983, when the Connecticut General Assembly passed Public Act 83-505. That legislation mandated gas and electric companies that serve more than 75,000 customers to provide an opportunity for their customers to add one dollar to their monthly bill payment. Operation Fuel is the recipient of the donations, which currently provides approximately 25 percent of its funding. The utility companies voluntarily match the donations made by customers. Both UI and CL&P match 50 cents on the dollar, up to the first \$150,000. In 2007, their contributions amounted to 8 percent of Operation Fuel's revenues. Foundation and corporate funding account for another quarter of the program budget as well as contributions made by individuals. Total revenue for the year ending June 30, 2007 was \$1,446,126.

In addition, Operation Fuel funding has been supplemented recently by the General Fund. As part of major energy legislation passed in 2007 (P.A. 07-242), Operation Fuel received \$2.5 million from the state General Fund to run the Clean Slate Program. This program targets low-income households with utility payment arrearages up to 24 months old and less than \$3,000. To qualify for a grant of up to \$1,000, the recipient had to make two payments during the winter season. Due to the late arrival of the funds, Operation Fuel has provided close to \$1 million of that in grants and will carry this program into the 2009 fiscal year. Also, in the August 2008 Special Session, \$500,000 was allocated to Operation Fuel for its 2008-2009 year operating expenses.

Program eligibility. Operation Fuel typically serves households with incomes between 151 percent and 200 percent of federal poverty level (\$30,975 - \$41,300 for a family of 4). Although the mission of Operation Fuel is to serve customers who do not qualify for state assistance, the fund's board of directors in 2007 implemented an Exceptions Policy for clients who did not meet the income guidelines or had received state assistance. This program helps households from 200 percent of the federal poverty level to 60 percent of state median income.

Program Activity. Table V-4 provides the activity level for Operation Fuel for the last two fiscal years.

Table V-4: Operation Fuel Customers Served		
	# of households	Total amount
FY 2007	3,512	\$1,007,222
FY 2008 ²⁵	5,500	\$2,365,229

UTILITY-SPONSORED LOW-INCOME PROGRAMS

Shut-off Prohibition

Statutorily, all utility companies are prohibited from shutting off or not reinstating service from November 1 to May 1 for hardship customers who are not able to pay their bills.

Eligibility. First, to be eligible for shut off prohibition, a household must demonstrate “hardship”. Those are households:

- whose income is solely through a government assistance program (such as Social Security);
- whose income is below 150 percent of poverty; or
- where a member is seriously ill.

Generally, the household must prove a financial hardship through submitting some type of financial documentation (e.g., a payroll stub, Social Security or DSS assistance verification) to the utility. Those eligible for the Connecticut Energy Assistance program are automatically referred to the utility. In cases of medical hardship, a DPUC-approved physician’s form must be submitted.

With customers who heat with gas, there must be some attempt to pay a minimal amount before reinstatement of service. Thus, if the customer was provided service the prior winter based on hardship, and the gas was shut off during the summer, those customers must first pay a certain amount in order to be reinstated for an additional season. They must pay the lesser of: \$100; the minimum payments due on the agreed payment plan; or 20 percent of the debt owed to the gas company at the time of shut-off.

Matching Payment Program

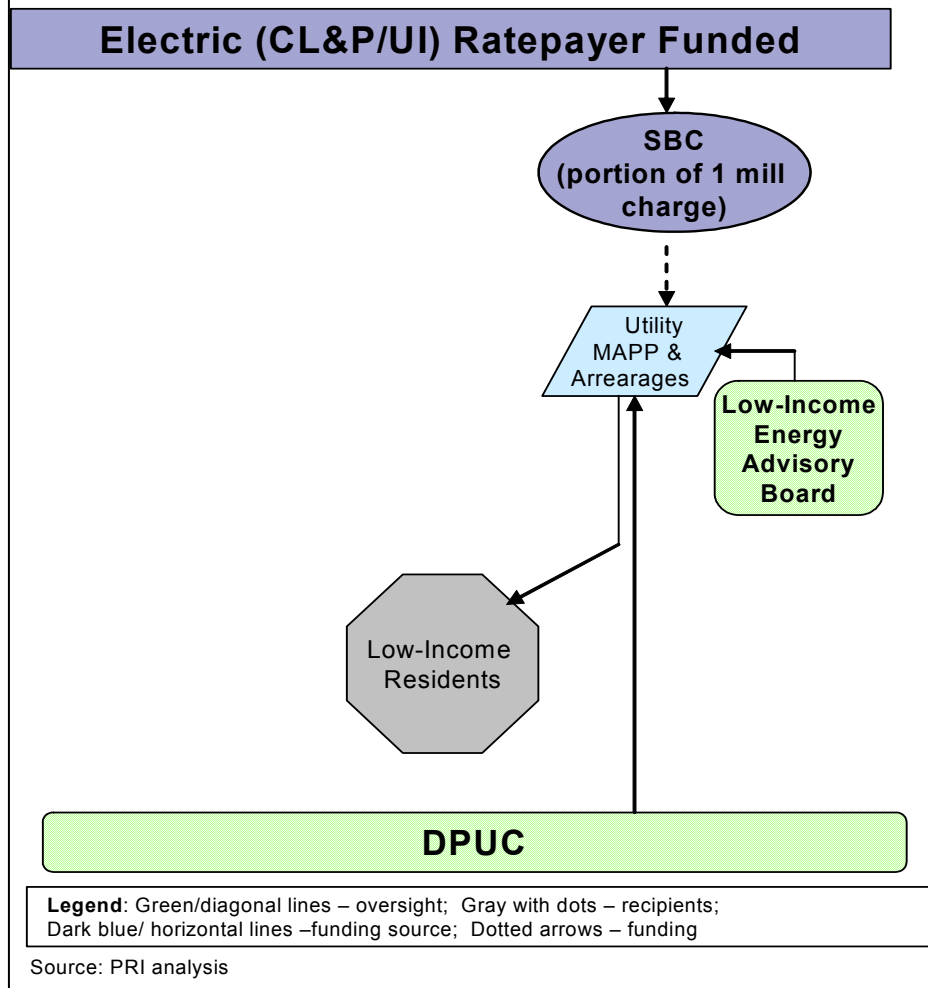
In addition to prevention of utility shut-off, the electric and gas companies offer assistance to low-income customers in paying their back utility bills. Figure V-5 shows the funding, oversight, and implementation structure for the Matching Payment Program as well as the Arrearage Forgiveness program.

Program eligibility. To be eligible for matching payments from the utility, the customers must:

- each year between November 1 and May 1, apply for and receive energy assistance from the state’s program or another program operated by nonprofit, including Operation Fuel; and
- enter into and comply with a repayment agreement for the unpaid amount (minus the anticipated energy assistance payment).

²⁵Fiscal Year 2008 numbers are preliminary and have not been audited

Figure V-5: Utility MAPP & Arrearage funding structure



Program administration. The utilities administer their own low-income cash assistance programs, typically out of their customer services division. While there are similarities among the utilities in the programs offered, there are also differences. Most of the utilities have a representative on the Low-income Energy Assistance Advisory Board, which seeks to coordinate all low income assistance programs. In addition, the utilities now have a memorandum of understanding (MOU) with the CAP agencies, which are already administering the state-sponsored low-income energy assistance. Under the agreement, the CAP agencies take applications -- and are paid a small administrative fee by the utility for each application taken -- for the utility matching payment programs, but the utilities determine eligibility and apply the payments.

In some cases, the utility companies have combined matching payment and arrearage programs, and in other cases, like United Illuminating, they are separate, with the difference in UI programs based on whether the customer heats with electricity or not.

The utilities use a variety of ways to inform customers of their assistance programs, including brochures and letters. In addition, the utilities held three forums in September and October of 2007 to inform the CAPs and other social service agencies and customers about the programs.

Program oversight. The Low-Income Energy Advisory Board seeks to coordinate and improve all energy assistance programs targeted at low-income groups, including the utility-sponsored programs. In addition, the utilities must submit their plans to DPUC for approval, which the utilities do as a joint plan.

In its 2007 decision on the low-income programs, DPUC ordered the utility companies to establish a focus group to address new ways of communicating the matching payment plan, and indicated DPUC would meet with program stakeholders to examine the program's benchmarks and objectives to determine the success of the program.

Funding. The funding for the low-income assistance programs comes from the rates charged to utility customers, either as part of the basic rate, some portion of the systems benefits charge on electric bills, or a combination of both. All matching payment plans and arrearage programs along with accompanying budgets must be approved by the Department of Utility Control. In addition, for customer arrearage payments that are not collectible, the utility after a period of time writes the amount off as bad debt. The total amount of bad debt is subsequently considered in the utility's filing for rate increases at DPUC.

Program activity. Table V-5 below shows the number of persons participating in the programs for 2007 and the amount paid by each utility. (Two of the utilities furnished 2008 data as well, but committee staff used 2007 data to be consistent). The number of total households served could be somewhat over-counted because some households heat with natural gas but are also served by electric utility under that hardship program.

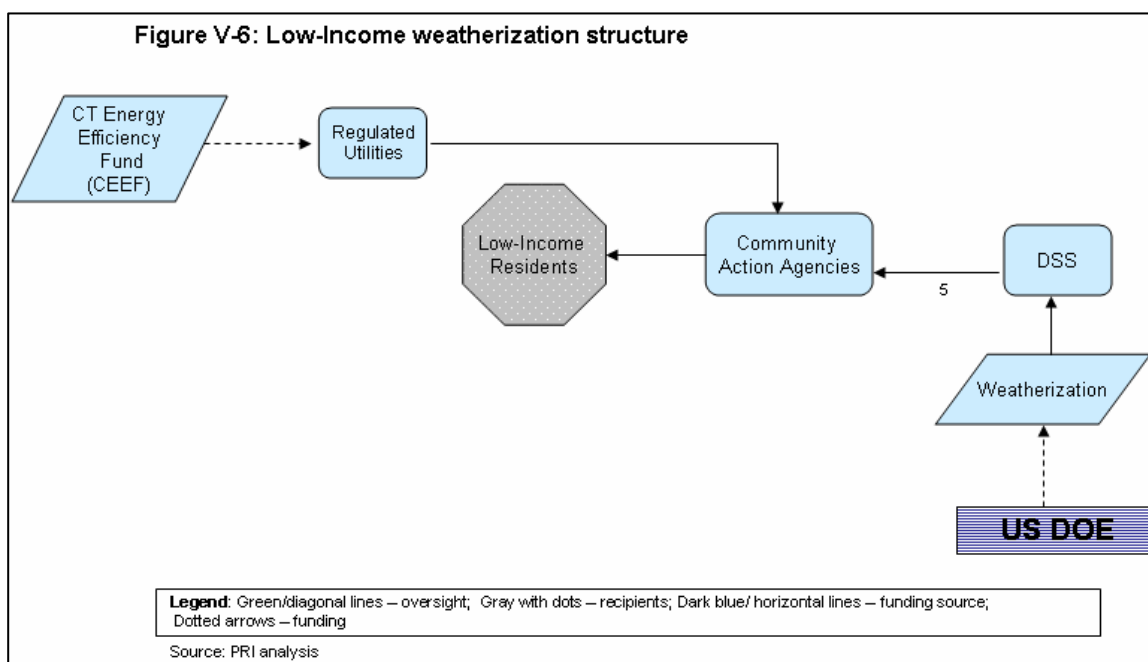
Table V-5. Low-income Assistance Utility-Sponsored Programs: 2007 Activity Levels			
Utility	Clients (households)	Total Expenditures	Average Payment
United Illuminating Matching Payment Program	3,988 applied		
	2,902 matched	\$1,730,894	\$596
United Illuminating Forgiveness Program (electric heat)	390 applied		
	230 matched	\$130,728	\$568
Connecticut Light and Power	4,223	\$2,297,000	\$543
Southern Connecticut Gas Matching Payment and Forgiveness	14,288	\$7,288,071	\$510
Connecticut Natural Gas Matching Payment and Forgiveness	12,522	\$6,747,612	\$538
Yankee Gas	6,148	\$1,686,000	\$274
Total		\$19,880,305	
Source of Data: Utilities Responses to PRI information request			

As shown in the table for the United Illuminating Company, about two-thirds to three-quarters of the clients who apply for the matching payment programs are successful in receiving matching assistance. According to staff for the gas companies, this is a similar proportion to their clients who are successful in getting full matching payments.

In addition to the matching payments program for low-income (or hardship) households, United Illuminating indicated it had about \$4.3 in uncollectible billing for its low-income customers in 2007. CL&P and Yankee Gas wrote off about \$15.5 million for low-income customers during 2007, but those utilities also wrote off \$21.7 million as uncollectible for non-hardship clients.

LOW-INCOME WEATHERIZATION PROGRAMS

As shown in Figure V-1 at the beginning of the section, there are also two weatherization programs for low-income households in Connecticut, one under the Department of Social Services and the other operated by the utility companies and funded either by CEEF or a surcharge on municipal electric utility companies' customers. Figure V-6 below shows both the funding and implementation structure for the weatherization programs.



DSS Weatherization Assistance Program (WAP). The Department of Social Services is the state agency in Connecticut designated to receive the U.S. Department of Energy block grant for weatherization. Over the past three years, FY 06-FY 08, the block grant has averaged about \$2.5 million annually. The purpose of the program is to help low-income residents reduce their energy bills by making their homes more energy efficient. The allocation formula to each state is based on three factors: 1) the percentage of low-income residents in the state; 2) climatic conditions; and 3) financial burden of energy costs on the state's low-income residents.

Eligibility. The program is available to anyone at or below 200 percent of the federal poverty level -- \$41,300 a year for a family of four. There is a single application process for CEAP and the weatherization program, but a CEAP applicant is given a card that must be filled out and returned in order to be put on a weatherization service list. Also, a landlord permission form must be submitted in order for work to be done on a rental unit. According to DSS program information, the landlord is expected to pay 20 percent of the material costs, up to a maximum of \$250 per unit. However, committee staff asked DSS about landlord contributions and department data show the amounts collected are minimal. Less than \$5,000 was collected statewide, with the five CAP agencies ranging from \$0 to more than \$3,000.

Program administration. DSS contracts with five of the 12 CAP agencies to conduct the weatherization programs in that CAP service area. As with the energy cash assistance program, the CAP administration is a common administrative model, with almost every state nationwide using CAP agencies to operate the weatherization program.

A listing of the five Connecticut CAP agencies under contract and the activity for each agency are provided in Table V-6 below. The program year for the weatherization program runs from April 1 through March 31 and annual budget, expenditures, and activity levels are reported for that period. The DSS contracts specify a target number (or goal) of units that will be weatherized in each CAP area, and also specify a maximum amount for labor and supplies that can be expended. The goals are established using DOE guidelines for the average maximum expenditure per unit and the total allocation. It is up to the individual CAP agency whether to use CAP staff on the weatherization program or subcontract the work.

Table V-6: WEATHERIZATION ASSISTANCE PROGRAM 2006-2008

GOALS AND COMPLETIONS by CAP AGENCY

AGENCY	04/01/2007-03/31/2008		04/01/2006-03/31/2007		04/01/2005-03/31/2006	
	Goals	Completions	Goals	Completions	Goals	Completions
Bridgeport Area	121	127	145	204	104	134
Stamford Area	33	26	38	0	28	15
Norwalk Area	23	24	34	8	19	9
TOTAL ABCD	177	177	217	212	151	158
Hartford Area	170	201	197	235	149	94
Bristol Area	22	22	30	19	18	35
New Britain	26	26	32	23	20	13
TOTAL CRT	218	249	259	277	187	142
					1	
New Haven Area	120	71	170	117	107	102
Derby Area	35	62	54	50	32	42
TOTAL CAA/NH	155	133	224	167	139	144
Waterbury Area	95	94	132	132	85	76
Danbury Area	27	27	42	14	27	16
Meriden Area	30	39	45	73	29	43
TOTAL NOW	152	160	219	219	141	135
Willimantic Area	80	136	95	119	61	64
New London Area	97	106	114	116	71	74
TOTAL ACCESS	177	242	209	235	132	138
TOTAL	879	961	1128	1110	750	717
Source: Department of Social Services						

Budget and expenditures. The table below indicates the weatherization budget and expenditures for the five CAP agencies for program years 2006 through 2008. Typically about 75 percent of the budget goes to the actual program, which includes material, weatherization staff, travel to the site, and storage rental space. The other 25 percent is for administration, which includes: training; financial audits; insurance; as well as DSS and CAP administrative costs.

As the table indicates, the annual amounts expended are always less than the amounts budgeted. This is mostly because the CAP agencies weatherize fewer units than the annual

established goals as listed in Table V-7, but does not explain the lower amount expended in 2008, given that the statewide goals were exceeded. In discussion with CAP agency staff, they indicate the agencies don't always know how close they are to expending their full budgeted amount during the weatherization season.

Table V-7. Weatherization Program – CAP Agency Budgets and Expenditures --						
Agency	Budget 04/07-03/08	Expenditures 04/07-03/08	Budget 04/06-03/07	Expenditures 04/06-03/07	Budget 04/05-03/06	Expenditures 04/05-03/06
ABCD	554,578	553,956	577,692	568,031	456,179	445,216
CRT	673,313	468,057	688,213	386,037	557,249	364,658
CAA/NH	486,766	363,626	625,112	385,308	420,337	344,404
NO	634,193	460,374	741,068	635,369	546,807	450,490
ACCESS	552,807	495,553	571,515	457,911	401,333	362,800
TOTAL	2,901,657	2,341,566	3,203,600	2,432,656	2,381,905	1,967,568
Source: Department of Social Services						

Average cost per unit. Based on the weatherization program expenditures and the number of units completed, the average cost each year is shown below:

- \$2,743 in program year 2006;
- \$2,886 in program year 2007;
- \$2,437 in program year 2008.

These amounts do not include the contributions to weatherizing these units that are made by the utilities, which will be explained below.

Activity Analysis

As Table V-6 indicates, in two of the three years the statewide goals were not met; however, most of that is due to substantial underperformance by the CAP agency in the New Haven area, CAA/NH, which met only about 68 percent of the goal set in 2007 and about 85 percent in 2008.

A general assessment of the goals and completion rates would indicate that goals are too low but that even those have not been met. For example, hypothetically if only half of the CEAP assistance units needed weatherization -- approximately 42,000 households -- and generously assuming that about 28,000 of those have been weatherized (1,000 X 28 (years of program) = 28,000), that would mean it would take another 14 years to complete the households receiving

cash energy assistance alone. However, the CAP agencies and DSS indicate the budget constrains the number of units that can be weatherized in a given year.

Table V-8 below shows the breakdown of weatherization units by whether they are owner or rental units and by fuel type. As the table shows, the vast majority of units weatherized are owner-occupied, and over half of the units weatherized are heated with home heating oil. This is in contrast to the cash energy assistance program where only about one-third of residents were in units that heat with oil. The most plausible explanation is that most people in the cash energy assistance program are renters (72%), and are much less likely to heat with oil.

Table V-8. Weatherization Program. Activity by Owner/Renter and by Fuel Type – 2006 through 2008						
Owner/Renter Occupied		2008		2007		2006
Owner-Occupied *		881		865		654
Renter-Occupied *		78		94		63
* Includes Single and Multi Family Dwellings						
Fuel Type						
Natural Gas		274		293		183
Oil #2		568		565		454
Electricity		59		41		45
Propane		21		27		13
Kerosene		38		30		21
Wood		1		3		1
Total		961		959*		717
				(*other 150 units unknown)		
Leveraged **		784		506		383
** Units were leveraged with WRAP, NU, Southern Connecticut Gas, Block Grant, and/or CEAP funds						
Source: DSS						

As Table V-8 notes, a great number of the units that receive weatherization assistance through the DSS program are “leveraged”, meaning they also receive some financial assistance from another program, typically from a utility.

Measures taken. A variety of measures are performed for weatherization assistance, depending on the need and the primary payer. Those units that are weatherized under the DSS program receive the most comprehensive measures, including sidewall and attic insulation and heating system repair. Furnace replacements may be done, but costs cannot be paid solely from the weatherization funds, and prior DSS approval is needed for furnace replacements.

There is no evaluation component to the DSS weatherization program, beyond ensuring that the work has been completed. According to DSS staff, the last formal evaluation was done by the federal Department of Energy, which funds the program, and the net savings were determined to be about 17 percent of residents’ prior energy bills. However, the federal DOE website indicates that the weatherization program nationally has saved residents about 32 percent of their previous energy expenses.

UTILITY-SPONSORED WEATHERIZATION PROGRAMS

In addition to the weatherization assistance provided through the DSS program, the utilities sponsor their own weatherization assistance programs for their low-income customers. The weatherization programs receive funding through the Connecticut Energy Efficiency Fund, are administered by the two major electric utilities, and serve customers in their respective service areas. Connecticut Light and Power's program is called the Weatherization Residential Assistance Program (WRAP), and is also supported by Yankee Gas and Connecticut Natural Gas. The UI Helps program is primarily sponsored by United Illuminating, but receives support from Southern Connecticut Gas.

Eligibility. Both utility-sponsored programs have the same eligibility criteria:

- income at or below 60 percent of state median income – for a family of four that is \$55,323 annually;
- a high energy burden as a percent of income;
- have not received weatherization in the previous 18 months; and
- submission of a landlord permission slip, although the landlord will not be charged for services.

Program administration. Applications may be made through CAP agencies or other social service agencies but the utilities make the eligibility determinations. The utilities contract with the CAP agencies in their respective areas to perform the weatherization services. The WRAP program contracts with all 5 CAP agencies that are in the DSS program and the UI Helps program contracts with CAA/New Haven and ABCD, the CAP agency serving the Bridgeport area. UI Helps also contracts with a private vendor. While there is no requirement that the utility contract with the CAP agency, this is done so that there is opportunity to “leverage” or optimize utility monies with the dollars already being spent through the DSS program.

Both utilities operate the programs on a calendar year basis. The weatherization programs are included in the CEEF plan and budget, which are developed with the Energy Management Conservation Board, and submitted for DPUC approval.

The two utilities vary somewhat in the way they deliver the programs; this coupled with the differences in the size of the programs results in varying activity and budget levels. To show the variation, the WRAP and UI Helps activity levels are discussed separately below.

WRAP

Program activities. Table V-9 below shows the actual budget and activity level of the WRAP program from 2000 to 2007.

Table V-9. WRAP Program Activity and Expenditures: 2000 – 2007			
Year	Expenditures	Units Weatherized	Average per unit
2000	\$4,406,000	6,749	\$653
2001	\$5,036,000	6,675	\$754
2002	\$4,716,000	6,022	\$783
2003	\$3,181,000	3,683	\$864
2004	\$4,591,000	8,765	\$524
2005	\$4,682,547	9,818	\$477
2006	\$5,298,638	10,461	\$506
2007	\$6,306,400	11,056	\$570
Source: CEEF 2008 Plan and CL&P			

As the table indicates, the expenditures for the WRAP program dropped in 2003, when funding was diverted from CEEF, but has been gradually increasing since that time. In 2007, the WRAP program expended over \$6 million and provided services to more than 11,000 units. Average per-unit costs have varied from year to year, with the highest per unit cost in 2003 at \$864.

Because the number of WRAP units completed appeared so high, given the much lower number completed in the DSS-sponsored program, committee staff asked CL&P for additional information about the WRAP units weatherized and the measures taken. CL&P indicated it operates four sub-programs with the first two offering the most comprehensive measures and the last two much fewer. A summary of the sub-programs and activity levels for 2007 are discussed below.

Partnership with DSS. This program component provides additional utility funding to the DSS programs to increase the comprehensiveness of the measures taken in those households. The customer must have electric or gas heat and be eligible for the energy assistance program, and have an already approved application through the DSS/CAP program. The CAP agencies do the work, and a bill is submitted to the utilities for the portion of the work the utility will pay for – each measure has a per-unit payment. In addition, for those units that have utility heat, the utility pays for the initial audit cost (about \$100). The audit determines the weatherization measures necessary. Activity level in this program for 2007 was:

- Total expenditures = \$550,000
- Units Completed = 854
- Average Cost = \$652

Utility-WRAP. The second subprogram is somewhat comprehensive, but does not supplement the DSS services. For this program, the utility reviews the application and determines if the household is eligible, and then submits the work order to the contractor for scheduling and completion. The contractor conducts the audit and identifies the measures that should be implemented. The measures installed under this component of the program are similar to those under the DSS weatherization (see Appendix F). According to the utilities, most measures can be installed the same day, but several -- such as insulation and heating system replacements -- require additional time. A breakdown of the activity levels by homeowner and renter is contained in Table V-10 below.

Table V-10. WRAP Subprogram 2 Activity: By Single-family (owner) or Rental Units – 2007		
Unit Type	Average Cost	Expenditures
1,523 Single-family	\$652	\$1,037,163
1,723 Rental	\$576	\$992,448
3,246 Total completed	\$625	\$2,029,611
Source: CL&P		

Lighting program. The third program component serves mostly entire multifamily complexes, whether only one meter or individual unit meters. No applications are taken for this program, and thus no eligibility criteria are established. However, low- and moderate-income housing complexes are targeted under this program. Lighting measures are installed in common areas as well as in individual units; most often these are conversions from incandescent lighting to fluorescent lighting. Some of the more costly measures taken -- such as common area conversion or retrofit -- are not included in the average cost per unit. The 2007 activity level was:

- Total Expenditures = \$458,488
- Units completed = 784
- Average cost = \$257

Neighborhood canvassing. This program serves participants through a neighborhood canvass approach. Typically, the utility WRAP staff and the CAP weatherization staff identify neighborhoods or multifamily complexes where many residents would be eligible for WRAP

services. Once areas have been identified, staff then notify neighborhood residents of the dates of the canvass through mailings or flyers. Also, local police and fire are notified to alleviate potential concerns about the legitimacy of canvassers in the area. Compact fluorescent bulbs may be left with customers and applications for the comprehensive program are left with residents. CL&P reports indicate that the cost per unit below does not include any refrigerators or room air conditioners that might be installed at another time (which would also require the filing of an application). The 2007 activity level was:

- Total Expenditures = \$1,029,204
- Units completed = 5,185
- Average cost = \$198

WRAP units. About 40 percent of the WRAP clients are homeowners and 60 percent are renters, which is very different than the DSS program where over 90 percent of clients own their own homes. A major difference in the weatherization services received depends on the heating source of the unit. Table V-11 below shows the weatherized WRAP units by heat source, and which utility was the primary funding source for the measures taken.

Table V-11. WRAP Units by Heat Source – 2007			
Heating Type	# customers	Total Expenditures	Avg \$ Per Unit
Primarily electric	2,890	\$1,030,652 (all CL&P \$\$)	\$357
Primarily Home Heat Oil	3,806	\$848,593 (all CL&P \$\$)	\$223
Primarily Yankee Gas	1,238	\$430,146 (all YG \$\$)	\$347
Primarily CT Natural Gas	531	\$334,017 (all CNG \$\$)	\$629
Primarily gas utility or propane	2,591 (includes the gas utility customers above)	\$3,662,992 (all CL&P \$\$)	\$1,413
Total	11,056	\$6,306,399.44	\$570
Source: CL&P			

UI HELPS

Program activity. Table V-12 shows the UI Helps expenditures and number of weatherized units from 2000 through 2007. The overall expenditures are less than those of the CL&P WRAP program, but that is to be expected since CL&P is a much larger utility with many more customers. However, the number of units completed by UI program is similar in some years to the CL&P completed units, but the average per unit cost in the UI Helps program is less.

Table V-12. UI Helps Program Activity and Expenditures: 2000 – 2007			
Year	Expenditures	Units Weatherized	Average per unit
2000	\$1,795,000	6,452	\$278
2001	\$1,500,000	7,720	\$194
2002	\$1,168,000	7,078	\$165
2003	\$799,000	5,377	\$149
2004	\$803,000	4,722	\$170
2005	\$1,086,000	8,603	\$126
2006	\$1,250,000	6,116	\$204
2007	\$888,663	3,660	\$243
Source: CEEF 2008 Plan and UI			

Table V-13 shows the UI Helps completed units by heating source, and as the table indicates the majority of the units weatherized heat with electricity, but there is not much difference in the cost per unit among the three primary heat sources. By far the largest cost per unit was for those completed in the Low-income ENERGY STAR category, which covers comprehensive measures and new appliances. However, only 21 units (less than 1 percent) receive that level of service.

Table V-13. UI Helps Units by Heat Source – 2007			
Heat source	Number	% of units	Avg. Cost
Heating Oil	630	17	\$223
Natural Gas	243	7	\$209
Electric	2,766	76	\$179
Low-income ENERGY STAR Homes	21	.57	\$956
Source: United Illuminating			

The variation in the two programs' activity levels, including the per-unit costs, as well as whether units with different heating sources are treated differently in each of the programs, all need further exploration. Committee staff will also examine how well each of the programs coordinates its services with the DSS weatherization program for the final report.

Benefits of the utility weatherization programs. Both the WRAP and UI Helps programs report on the savings in the CEEF plan, both as the electric test and the total resource test (these tests are explained in Section III). The goals and the actual savings are shown in the table below (Table V-14):

Table V-14. Utility Weatherization Programs: Reported Savings				
	2008 B/C Savings		2008 TRT Savings	
	Stated Goal	Actual	Stated Goal	Actual
WRAP	2.2	1.1	3.1	2.5
UI HELPS	2.2	2.0	3.9	2.7
Source of Data: 2008 Conservation and Load Management Plan and Utility Responses to PRI staff information request				

Evaluation of WRAP and UI programs. Evaluation of all CEEF programs are conducted periodically. The Energy Conservation Management Board, which oversees the Connecticut Energy Efficiency Fund programs, engaged a consultant to conduct an evaluation of the utility-sponsored weatherization programs, which was released in December 2006. While the evaluation found that the programs accomplish their goals of helping to reduce customers' energy use, it also determined that neither program represents "best practice" among low-income weatherization programs. The assessment found that while some participants in both programs received comprehensive services (e.g., insulation, refrigerators) that have a large impact on their energy use and bills, most participants receive measures (e.g., compact fluorescent bulbs, showerheads) that have a relatively minor impact on energy consumption and bills.

Further, the evaluation found that each utility was using a different resource test to measure success, and that the predicted benefits for each were probably too high. Interestingly, the savings numbers for both programs were lower in 2005 and 2006 when the evaluation was conducted than those in the 2008 plan and shown in Table V-14 above, especially when considering that UI is completing far fewer units than it did in 2005 and 2006.

The evaluation team made 26 recommendations to improve the programs. Some of the proposals, such as UI partnering with the Bridgeport CAP agency, have been implemented. Other proposals-- like ensuring more similarity between the two utility programs, and improving coordination with all energy assistance programs to ensure that eligible households receive all measures to reduce their energy bills -- have yet to be achieved.

MUNICIPAL UTILITY WEATHERIZATION PROGRAM

Calendar year 2007 was the first year that municipal utility low-income residential customers received weatherization services paid for through the statutory surcharge on all municipal utility electric bills. However, it is not clear that all municipal utilities offered these

services. The municipal utilities' cooperative (CMEEC), which does the reporting for its member utilities, indicated that \$155,716 was allocated for low-income weatherization programs for 2007, but only \$82,801 was spent.

Groton Utilities (GU) and Norwich Public Utilities (NPU) indicated it had provided services and NPU indicated its program is particularly comprehensive in identifying all sources of energy waste and taking steps to save electricity, gas and water, including water heating and pipe insulation and air duct sealing. The activity level for the municipal utility weatherization programs for 2007 was:

- Total expenditures = \$82,801
- Units completed = 142
- Average cost = \$583

Savings. The benefit cost ratio stated in the municipal utilities annual report indicates a benefit cost ratio for the weatherization programs of 0.8, meaning the costs of the measures taken outstrip the electric cost reduction. However, since the report from the utilities also indicates that fairly comprehensive measures were taken, participating customers may see their other energy costs go down, not just a small reduction in electric bills.

COMMUNITY ACTION AGENCY STATUS REPORT ON WEATHERIZATION

In an effort to determine how many people had received weatherization services during 2007, whether funded by DSS or a utility, and how many are awaiting services, program review staff asked the CAP umbrella organization, Connecticut Association for Community Action (CAFCA) to provide recent weatherization program data, which is summarized in Table V-15.

Table V-15. Community Action Agency Weatherization Status Report: September 2008						
CAP AGENCY	DOE/DSS \$ # completed	DOE/DSS \$ # waiting	CEAP/Furnace # Completed	CEAP Furnace/ waiting	Utility \$ # completed	Utility \$ # waiting
ACCESS (Willimantic)	242	240	18 repairs 3 replacements	12	2,842 (WRAP/CL&P)	320
Community Renewal Team Hartford	250	170	25 repairs 21 replacements	20	6,135 (WRAP/CL&P)	420
NO Inc.	166	820	13 repairs 15 replaced	13	2,133 (WRAP/CL&P)	168
CAA/NH New Haven	133	213	14 repairs 10 replaced	17	300 (UI) 150 (SCG)	No waiting list
ABCD (Bridgeport)	177	275	5 repairs 30 replaced	34	150 (UI) 50 (Wrap/CL&P)	No waiting list
Source of Data: CAFCA Response to PRI request September 2008						

Recent Weatherization Legislation

In the August 2008 special session, \$2 million was appropriated to the DSS weatherization program. By November 1, 2008 or earlier, DSS has to develop a plan for:

1. providing funds for weatherization projects for low-income households participating in the Connecticut energy assistance program;
2. prioritizing assistance to households with incomes below two hundred per cent of the federal poverty level; and
3. coordinating provision of assistance to maximize effectiveness of these funds with the utility-sponsored weatherization assistance programs overseen by the Energy Conservation Management Board, and those undertaken by the Fuel Oil Conservation Board.

While the data need further investigation, the waiting list information provided in the table above may provide useful information in the development of the plan.

APPENDICES

Appendix A

Status of Public Act 07-242

Public Act 07-242 update on matters related to energy efficiency and conservation			
Sec.	Program Description	Status	Date effective
1	The Secretary of OPM shall provide a \$500 rebate for the purchase and installation in residential structures of replacement natural gas furnaces or boilers that meet or exceed federal Energy Star standards and propane and oil furnaces and boilers that are not less than 84% efficient. Rebates shall not exceed five million dollars in aggregate per year.	Funding recently provided in the August 2008 Special Session as well as the August meeting of the State Bond Commission.	July 1, 2007 to January 1, 2012
2	State Bond Commission shall authorize the issuance of bonds with the proceeds to be deposited in the Energy Conservation Loan Fund to provide funding for Section 1.	Not applicable after funding was made available through the August 2008 Special Session.	July 1, 2007
3	ECMB, in consultation with the electric distribution companies, shall establish a cost-effective program to 1) provide rebates to residential customers who replace an existing window air conditioning unit with a federal Energy Star unit or replace a central air system to meet federal Energy Star requirements. ECMB, in consultation with the Low-Income Energy Advisory Board, develop a program for residential customers who live in apartments. The program will be funded by the Energy Conservation and Load Management Fund. On or before January 1, 2009, ECMB shall report to the legislature the results of the rebate program	ECMB worked with two electric companies to develop the programs which are included in the 2008 C&LM/CEEF Plan. Rebate amounts were reduced for some of the systems to meet the cost-effective requirement. (per ECMB)	January 1, 2008 to September 1, 2008
10	Requires OPM in consultation with Public Works, DEP and Public Safety to adopt regulations that are consistent with or exceed silver building rating of the LEED rating system for new construction or renovation of a state facility, and renovation of a public school facility, within specified cost parameters. Facilities may be exempt if the Institute for Sustainable Energy finds the cost of such compliance to outweigh the benefits.	“Green Building Standards” submitted to the Attorney General’s office for review in September 2008. Upon approval, will be sent to the legislature in early October for approval.	January 1, 2008
12	Establishes minimum energy efficiency standards for a specific list of new products sold, offered for sale or installed in the state.	Regulations adopted in 2008	October 1, 2007
13	Added the following ways in which the money collected from the systems benefit charge can be used: costs associated with the CT electric efficiency partner program established pursuant to section 94; reinvestments and investments in energy efficiency programs and technologies pursuant to section 101 of the act; and costs associated with the electricity conservation incentive program established pursuant to section 119	In progress	Effective from passage
14	ECMB in consultation with the electric distribution and gas companies, develop and estimate the cost of a comprehensive residential conservation	CEEF combined the home energy programs into one comprehensive Home Energy Solutions Program that was	October 1, 2007

Public Act 07-242 update on matters related to energy efficiency and conservation			
Sec.	Program Description	Status	Date effective
	<p>program including but not limited to:</p> <ol style="list-style-type: none"> 1) An audit identifying appropriate conservation measures applicable to a utility customer's dwelling unit; 2) a system that prioritizes customers to be assisted in the installation of the measures identified in the audit; 3) a system of oversight that advises and assists a customer in obtaining landlord authority for installation of cost-effective measures and assists a customer in accessing incentives; and 4) provides financing for conservation measures on the utility bill <p>On or before February 1, 2008, ECMB shall report to the legislature regarding development and cost of a comprehensive residential conservation program</p>	<p>implemented after the legislation. ECMB prepared a report on the current offering which is included in "2008 Connecticut Energy Excellence Plan" completed May 27, 2008.</p> <p>The requirement to provide financing for conservation measures on the utility bill has not been completed</p>	
39	<p>Expands customers who are eligible for net metering to all customers not just customers in dwellings of one to four units who generate electricity from a Class I renewable energy source or a hydropower facility that has a nameplate capacity rating of two megawatts or less. Customers are also allowed to carry forward credits into subsequent billing periods which is reconciled annually.</p>	<p>DPUC final decision delivered January 31, 2008 for CL&P in Docket 03-07—02RE10</p> <p>A final decision for UI is still pending (Docket 05-06-04RE04)</p>	October 1, 2007
40	<p>Extends the time period and increases the requirement for the use of Class I or Class II renewable energy sources by electric suppliers or distribution companies. For 2007, 3.5% of electricity generated must be from Class I and an additional 3% of total output or services shall be from Class I or Class II. In addition the department shall adopt regulations for this section.</p>	In progress	October 1, 2007
41	<p>Requires CMEEC to first develop standards for promoting renewable resources and second submit a both the standards and an annual report to the Clean Energy Fund Advisory Board for review.</p>	Plan submitted to the Clean Energy Fund Advisory Board in March 2008.	July 1, 2007
42-44	<p>A customer, who implements energy conservation or customer-side distributed resources, shall be eligible for Class III credits which shall not be less than 1 cent per kWh. For nonresidential projects receiving funding from the CEEF, 25% of the financial value derived from the credits will go to the customer with the remainder going to the CEEF. For nonresidential customers not receiving CEEF funding, 75% of the credit value will go to the customer with the remainder going into the fund. For projects that serve residential customers, 75% of the financial value derived from the credits will go into the fund.</p>	Open Docket at DPUC (05-07-19 RE01)	Effective from passage
46	<p>Requires rather than allows municipalities to exempt certain renewable energy systems from the property tax that are installed after October 1,</p>	In progress	October 1, 2007

Public Act 07-242 update on matters related to energy efficiency and conservation			
Sec.	Program Description	Status	Date effective
	2007.		
47	Requires rather than allows municipalities to exempt from property tax any passive or active solar water or space heating system or geothermal energy resource, in any type of building installed on or after July 1, 2007.	In progress	October 1, 2007
51-52	Electric distribution companies, in consultation with CEAB, review the state's energy and capacity resource assessment and develop a comprehensive plan for the procurement of energy resources with a focus on reducing demand through energy efficiency and demand reduction resources that are cost-effective, reliable, and feasible. DPUC will oversee the implementation of the procurement plan.	CL&P and UI prepared the Integrated Resource Plan and submitted it to the CEAB. CEAB submitted a revised IRP to the DPUC on August 1, 2008 for their approval.	Effective from passage
53	Expanded the membership of the CEAB from nine to fifteen and required the board to review the procurement plan submitted by the electric distribution companies, pursuant to section 51, as opposed to producing an annual energy plan.	New appointees complete and the procurement plan was delivered to the DPUC for approval.	Upon passage
58	CEAB shall conduct a study to develop recommendations on how to: <ul style="list-style-type: none"> • Coordinate and integrate the state's energy entities • Achieve the goals of RGGI • Promote indigenous alternative fuel sources 	Study is to be completed by January 1, 2009; first phase of the study complete.	Effective July 1, 2007
59	CEAB shall conduct a study on the efficacy, innovativeness and customer focus on electric conservation programs and report to the legislature.	Complete. Final report issued February 1, 2008 titled "Connecticut Electric Conservation Programs Study."	Not later than July 1, 2007 hold a hearing; Not later than February 1, 2008 submit a report
65	Requires the CEAP program to maintain the assistance levels of the CEAP that were established in 2005 legislation	CEAP program maintains the increases authorized in the 2005 legislation -- basically \$675 per household a heating season --and crisis funding (August 2008 SS increases CEAP levels)	July 2007 2008 SS increases take effect 2008/2009 heating season
66	Requires DSS to buy all deliverable fuels for the CEAP program at discounted prices and requires the CAP agencies that administer the CEAP program to provide DSS with pricing information and to begin accepting application for CEAP on Sept. 1 annually (in which funding is available)	CEAP report does include the CAP agency fuel pricing. CEAP 2009 plan requires vendors to charge	July 1, 2007 (limitations placed by budget bill 07-4)
67	Extends the end of period (from April 15 th to May 1 st - November 1 begins moratorium period) which utilities are prohibited from terminating service for their hardship cases (including households who have a seriously ill member, are 125% of FPL, or income is solely SS, VA or unemployment insurance).	Utilities are using the extended date, and are making changes in system to better identify hardship cases	
68	Exempts from sales tax -- all equipment and installation for: solar electric and space and water heating systems; geothermal; and ice storage for	Many weatherization items are listed on DRS website as being exempt from sales tax. Solar systems not listed.	July 1, 2007

Public Act 07-242 update on matters related to energy efficiency and conservation			
Sec.	Program Description	Status	Date effective
	cooling for utility customers on time-of-use rates.		
71	Allows electric companies to meet RPS standards by entering into long-term contracts (up to 15 years) that procure renewable energy credits. Credits are sold separately from power produced and count for electric companies' compliance. Required DPUC to establish a contested (regulatory case) to determine provisions contracts and process	DPUC issued draft decision on June 30, 2008 Final decision July 31, 2008 DPUC allows companies to procure RECs through contracts but does not require Authorizes max. of 0.4 mills per kWh for incentive	
74	Allows the CT Health and Educational Facilities Authority to provide grants and other financial assistance to colleges, hospitals, nursing homes and other nonprofits to implement energy efficiency and renewable energy projects	No CHEFA grants have been made	October 1, 2007
75 and 80	Reinstates until <i>June 30, 2008</i> the provision in 2005 legislation that lowers the interest for non lower-income groups and expands the type of projects the loans may be used for and increases the maximum loan amount from \$15,000 to \$25,000.	Lower interest rate continued. August 2008 SS allowed zero percent loans for residents with up to 200% of area median income	
78	State building inspector and Codes and Standards Cmtee to amend SBC to require certain buildings costing over a certain amount to build (\$5m) or \$2m to renovate to meet the LEED silver standard. Inspector and Cmtee. to waive requirement if ISE determines costs to comply significantly outweigh benefits	Many revisions to state building code, including required changes submitted to legislature's Regulation Review Committee, September 2008	Revise code by Jan. 1, 2008. New Building over \$5m to comply Jan. 2009, renovations over \$2m by Jan. 2010
81,82 and 128	Requires Operation Fuel (OF) to establish a one-time program to assist people with utility arrearages of more than 24 months old – grants up to \$1,000, and provide case management services like budget counseling. Extends the optional check off on utility bills to all electric and gas companies for OF's operations and increases check off amounts, and requires utility companies to submit any company contributions at the same time. Requires utility companies and fuel oil dealers to coordinate program promotions.	\$5m grant funding from OPM -- \$2.5m for arrearage forgiveness program; \$1.75 for expansion Operation Fuel's regular program, and \$.75m for OF infrastructure improvements (e.g., information technology) Operation Fuel implemented the grant program outlined in 2007. Utilities in compliance with check-off.	
84	Requires ECMB to contract with a 3 rd party for an assessment of energy efficiency potential to be issued to General Assembly	ECMB issued an RFP – Not completed	Required to report to GA by February 1, 2008
85	Requires electric companies to implement time-of-use (TOU) rates for large customers must include off peak, shoulder and peak	Phase-in mandatory schedule for time-of –use rates. New off-peak hours: 8 p.m. to 12 noon (accompanied by campaign “Wait Until 8”)	Begun in early 2009
86	Requires that DPUC direct the electric utility companies to negotiate long-term contracts with each of the generators within 60 days of DPUC selecting the generators. DPUC can approve only those contracts it finds would lower rates	DPUC issued decision in August 2007 selecting 3 generators that utilities could negotiate with	
87, 88	Requires DPUC, with ECMB to establish a plan for energy efficiency and outreach marketing	\$5m in General Fund monies allocated for this. Much is a website clearinghouse of info entitled Ctenergyinfo.org	Implementation by March 2008

Public Act 07-242 update on matters related to energy efficiency and conservation		
Sec.	Program Description	Status
111, 127		Also energy hotline 1-800-WISE-USE w/calls handled at the Institute for Sustainable Energy at ECSU
89	All utilities, including municipalities, to submit a plan to DPUC for notifying customers of impending blackouts and steps they can take	DPUC indicates will be addressed in Energy Outreach/Awareness program
90 and 91	Authorizes \$50m in bonding for a separate Clean Energy Fund Act to establish a municipal renewable energy and efficient energy generation grant program. Priority for grants to be given disaster relief centers and high schools. Grants to make the cost of these generation sources competitive w/ town's current electricity expenses.	No bonding funding was allocated
92	Requires retail supplier choice	In place -- information on DPUC website
93	Requires DEP to develop regulations to implement the regional greenhouse gas initiative (RGGI)	Regulations approved by Regulations Review Committee in July 2008. First carbon credit auction to be held on September 25, 2008
94 and 96	Electric Efficiency Partners <ul style="list-style-type: none"> requires ECMB to evaluate and approve technologies that can be used by "partners" and file those evaluations with DPUC by October 15, 2007, including evaluation of cost/benefit 	DPUC held technical meetings early in 2008, issued final decision in June 2008 Applications for the program are on DPUC website DPUC has authorized no funding through rates as of September 2008 Full explanation in Section III --this report
97	<ul style="list-style-type: none"> ECMB must provide DPUC with analysis of growth in overall and peak demand by October 15, 2007 	Submitted to DPUC and briefing to key legislators in June 2008
97	Requires ECMB to also develop an Energy Excellence Plan that: <ul style="list-style-type: none"> Describe in detail existing higher education energy efficiency resources Quantify role energy efficiency programs can lay in making business climate more competitive Identify measures and research investment that can make CT a national leader in energy efficiency Detail efficiency efforts that can lead to a reduction of peak electric demand by 10% by 2010 	Plan was submitted to Energy and Technology Committee in May 2008 (most aspects addressed)
98	Requires electric utilities to submit a plan for advanced metering	DPUC issued decision on generic rate design reopener: UI currently has advanced metering; allowed to enhance current program with communications, billing and metering so that customers can better manage energy use

Public Act 07-242 update on matters related to energy efficiency and conservation		
Sec.	Program Description	Status
		Date effective
		DPUC decision to CL&P authorizes a pilot with phased-in testing during 2008 and 2009 because costs of new metering so high
99	Requires electric companies to off real time pricing	Same as above
100	Requires ECMB and DPUC to develop an e-mail cell phone alert to reduce peak consumption	Part of outreach campaign
102, 103	DEP/DPUC short term on-site generation program	DPUC issued RFP in 1/08 for manager of a pilot program on back-up on-site generation
104	Requires DPUC to conduct study of standard service procurement	DPUC issued decision in April 2008. Decision states that neither a non-profit or for profit should be used for procurement but that utilities may use long-term bilateral contract with generators for standard supply. Must not exceed 20% of standard supply and all contracts must be approved by DPUC
106	Requires DPUC to study development of financial incentive program to utilities to stabilize or reduce electric (peak) demand	DPUC issued final decision in January 2008. determined not yet feasible to develop a program
108	DPUC, with OPM and Clean Energy Fund develop a grant program for distributed generation/renewable energy	Grant program in place at DPUC – Funded with \$50m bond
109		
115	Additional funding to gas conservation and efficiency programs through the growth in utilities gross receipts tax over projections	To date no funding resulted from this –
116	<ul style="list-style-type: none"> Establishes a 13-member Fuel Oil Conservation Board Requires the board to establish itself as a nonprofit (501c) To issue an RFP to select an administrator for fuel oil conservation programs and contract with entity for up to three years. Renew or issue an new RFP Administrator must submit a comprehensive fuel oil conservation plan to ECMB FOCB to assist the administrator in plan development an implementation Funding is to come from excess over 2006 revenues in gross receipts tax on sale of petroleum products -- \$10m annual limit (PA 07-1 limited it to \$5m a year beginning in 09) Monies not spent revert to GF Every 2nd year (even years), AG to select a third party to audit FOCB activities and report to E&T and Environment committees Board to report annually to committees on expenditures, balances and cost effectiveness of programs 	RFP issued for administrator – selection and negotiation of contract underway. No programs have been implemented as of September 2008. Funding allocated in June and August Special Sessions
		January 1, 2008 to September 1, 2008

Public Act 07-242 update on matters related to energy efficiency and conservation			
Sec.	Program Description	Status	Date effective
117	DPUC to start proceedings if new RFP does not meet demand identified in the Integrated Resources Plan (IRP)	IRP went to DPUC in September 2008 -- Not determined resources needed	
118	Requires electric companies to waive its demand charges for fuel cell owners under certain conditions	Issued as part of generic rate design decisions	
119	Required electric utility companies to offer a conservation incentive program to allow customers a credit of 10%. 15% or 20% off the generation portion of their bills for July through September if they reduced their consumption compared to the same period for 2006.	DPUC issued decision in June 2007 and changed the months from June to August to July to September to allow more time for customers to become aware of the program. DPUC issued report on program – CL&P – 290,078 customers in rebate program = \$17.2m UI had 81,207 customers = \$4.2m DPUC cautions using again (at least to 2009) given costs and unknown direct impact on use	July - September 2007
121	Authorizes \$30m in bonding through the Clean Energy Fund for renewable energy and combined heat and power projects in state buildings. To be eligible the buildings must be certified (or in the process) in the LEED program. P.A. 07-4 expanded the eligibility to include to LEED-silver building or 2 globe-rating in the Green Globes program (another rating system)	No bonding money has been allocated -	
122	Requires certain percentage of state fleet vehicles purchased use alternative fuel or other energy efficient	DAS indicates 55% of 992 vehicles purchased from 9/07 to 8/08 meet the standards	50% of vehicles purchased between Jan 1, 2008 and December 31, 2009. 100% after that
124	Increases the amount of megawatts electric companies must purchase from generators of Class I renewable resources through long-term contracts. Had been 100 megawatts; law requires 125 megawatts from October 1, 2007 to October 1, 2008 and 150 megawatts after that.	Requires a study to be done by DPUC, with the OCC and the Ct Clean Energy Advisory Board on these contracts and report to the E&T committee on these contracts. DPUC considered analysis done by CCEF, EDCs and OCC and issued a decision in January 2008 on which renewable generating projects DPUC would approve. Clean Energy has approval of “150 projects” in its plan.	
125	Requires DPUC to examine the effectiveness of ECMB’s programs (through contested case proceeding)	ECMB indicates DPUC does ongoing review of programs when it annually approves conservation and load management plan and budget	July 1, 2010

Appendix B

Glossary of Energy Terms

BTU - The standard measure of heat energy. It takes one Btu to raise the temperature of one pound of water by one degree Fahrenheit at sea level. One Btu is equivalent to 0.293 watt-hours.

Demand-side management - Conservation resource planning considering factors affecting energy usage for each customer class and generally designed to reduce or shift load.

Electric generation company - a company that generates/produces electricity for sale in a competitive market.

Electric supplier - an entity licensed by the DPUC to provide electric generation services to end use customers using the transmission and distribution facilities of an electric distribution company.

Electric distribution company - the company that delivers electricity to the retail customer's home or business. This company owns the power lines, poles, wires, conduits or other fixtures needed to handle the transmission and distribution of the electricity along public highways or streets.

FERC - Federal Energy Regulatory Commission regulates the price, terms and conditions of power sold in interstate commerce. Also regulates the price, terms and conditions of all transmission services. FERC is the federal counterpart to state utility regulatory commissions.

FMCC - Federally-Mandated Congestion Costs - Effective January 1, 2004, federal law requires that two line item charges for congestion costs, energy-related and/or reliability-related costs be added to customer bills. They are defined as charges to the consumer resulting from deficiencies in the electricity transportation system. Congestion costs occur when a more costly generator is dispatched before a less costly one because there isn't adequate transmission capacity to get the generation from the less costly plant to the load center that needs it.

"Gap RFP" – On December 1, 2003, ISO New England Inc. (ISO-NE) issued a Request for Proposals (RFP) soliciting up to 300 MW of temporary supply and demand resources for Southwest Connecticut (SWCT) for the period 2004 to 2008. The purpose for acquiring these resources was to improve the electric system reliability in SWCT through the summer of 2007, when the 345 kV transmission loop is planned for completion.

Gigawatt (GW) - One thousand megawatt hours (1,000 mWh) or one million kilowatt hours (kWh) or one billion watts (1,000,000,000 watt hours) of electricity.

HVAC - A system that provides heating, ventilation and/or cooling within or associated with a building.

Independent System Operator (ISO) - a neutral operator responsible for maintaining instantaneous balance of the electric grid system. The ISO performs its function by controlling the dispatch of flexible plants to ensure that loads match resources available to the system. The operator for this region is ISO- New England.

Kilowatt (kW) - One thousand (1,000) watts. A unit of measure of the amount of constant electricity needed to operate given equipment. On a hot summer afternoon a typical home, with central air conditioning and other equipment in use, might have a demand of 4 kW.

Kilowatt-hour - (kWh) a measure of electricity consumption equivalent to the use of 1,000 watts of power over a period of one hour.

Load management - the shifting of customer energy demands for a utility's power to different time periods of the day.

Megawatt (MW) - One thousand kilowatts or one million watts. One megawatt is enough energy to power 200 average homes

Megawatt hour (MWh) - One thousand kilowatt-hours, or an amount of electricity that would supply the monthly power needs of a typical home having an electric hot water system

Peak load or peak demand - The electric load that corresponds to a maximum level of electric demand in a specified time period. Peak periods during the day usually occur in the morning hours from 6 to 9 a.m. and during the afternoons from 4 to about 8 or 9 p.m. The afternoon peak demand periods are usually higher, and they are highest during summer months when air-conditioning use is the highest

Renewable energy - solar energy, wind, ocean thermal energy, wave or tidal energy, fuel cells, landfill gas and biomass conversion technologies are considered renewable energy sources.

Systems Benefits Charge - the charge on each electric customer's bill that covers certain regulatory and social policy costs, such as public education, hardship protection, low-income conservation benefits and taxes.

Appendix C

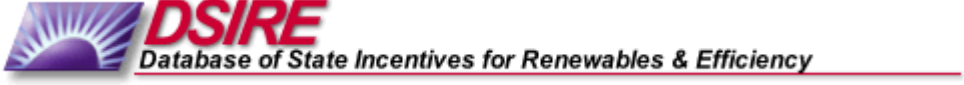


Financial Incentives for Renewable Energy

State	Personal Tax	Corp. Tax	Sales Tax	Prop. Tax	Rebates	Grants	Loans	Industry Support	Bonds	Production Incentives
Federal	3-F	4-F				2-F	3-F			1-F
Alabama	1-S				3-U	1-S	1-S 1-U			1-U
Alaska							2-S			1-U
Arizona	3-S	1-S	1-S	2-S	6-U		2-U			
Arkansas										
California				1-S	5-S 35-U 1-L	1-L	2-S 1-U 1-L			1-S 2-U
Colorado			1-S 1-L	2-S	7-U 3-L	1-L 1-P	3-U 1-L	1-S		
Connecticut			1-S	1-S	2-S	4-S	2-S	2-S		1-P
Delaware					1-S	2-S				
Florida		2-S	1-S	1-S	1-S 7-U 2-L	1-S	4-U			1-U
Georgia	1-S	1-S	1-S		3-U		3-U			1-U
Hawaii	1-S	1-S			2-U		1-S 2-U 1-L	1-S	1-L	
Idaho	1-S		1-S	1-S	2-U	2-P	1-S		1-S	1-P
Illinois				2-S	1-S	2-S 1-P		1-S		
Indiana				1-S	1-S 25-U	1-S				
Iowa	1-S	1-S	1-S	3-S	6-U	1-S	2-S			
Kansas				1-S			1-S			
Kentucky	1-S	2-S	1-S		5-U		2-U 1-P			1-U
Louisiana	1-S	1-S		1-S			1-S			
Maine					1-S	1-S	1-S			
Maryland	2-S	2-S	2-S	4-S 3-L	3-S 1-L		2-S			
Massachusetts	2-S	3-S	1-S	1-S	2-S 2-U	3-S	1-S 1-U	2-S		1-P
Michigan				1-S	1-U	4-S		2-S		
Minnesota			2-S	1-S	2-S 9-U	2-U	5-S 1-U			1-S 1-U
Mississippi					4-U		1-S			1-U
Missouri		1-S			6-U		1-S 1-U			
Montana	3-S	1-S		3-S	2-U	1-U 2-P	1-S	2-S		1-P
Nebraska			1-S		2-U		1-S			
Nevada				3-S	1-S					
New Hampshire				1-S	3-U		1-S			
New Jersey			1-S		4-S 1-U		1-S 1-U			1-S
New Mexico	3-S	3-S	2-S					1-S	1-S	1-U
New York	2-S	1-S	1-S	2-S 1-L	5-S 3-U	2-S	2-S	2-S		1-S
North Carolina	1-S	1-S	1-S	2-S			1-S	1-S		1-U 1-P
North Dakota	1-S	1-S		2-S			1-U			
Ohio		1-S	1-S	1-S 1-L	6-U	2-S				1-S
Oklahoma		1-S					3-S 1-U	1-S		
Oregon	1-S	1-S		1-S	3-S 12-U	1-S 2-P	1-S 7-U	1-S		1-U 1-P
Pennsylvania				1-S		3-S 3-L	1-S 1-U 5-L			
Rhode Island	1-S	1-S	1-S	2-S	1-U					1-P
South Carolina	1-S	2-S	1-S		1-S 2-U	1-S	1-S 4-U			1-S
South Dakota				3-S	1-U		2-U			
Tennessee				1-S		1-S	1-S			1-U

Texas		1-S		1-S	7-U		1-S	1-S		
Utah	1-S	1-S	1-S		5-U					
Vermont		1-S	1-S	1-S	1-S	1-S 1-U	1-S			2-U
Virginia				1-S				1-S		1-U
Washington			1-S		12-U	1-L 2-P	9-U	1-S		1-S 3-U 1-P
West Virginia		1-S		1-S						
Wisconsin				1-S	2-S 2-U	1-S 1-U		1-S		4-U
Wyoming			1-S		1-S 1-U					
District of Columbia						1-S				
Palau										
Guam										
Puerto Rico	1-S		1-S	1-S						
Virgin Islands					1-S	1-S				
N. Mariana Islands										
American Samoa										
Totals	32	36	28	56	228	57	99	21	3	39

F = Federal S = State/Territory L = Local U = Utility P = Private

									
Financial Incentives for Energy Efficiency									
State	Personal Tax	Corp. Tax	Sales Tax	Prop. Tax	Rebates	Grants	Loans	Bonds	
Federal	2-F	3-F				1-F	2-F		
Alabama					10-U		1-S 10-U		
Alaska					1-S 2-U		4-S		
Arizona	1-S				3-U		1-U		
Arkansas							1-S 4-U		
California					59-U	5-U	2-S 7-U		
Colorado					17-U	1-U	2-U		
Connecticut			1-S		13-U	1-S 1-U	2-S 3-U		
Delaware									
Florida					16-U	1-S 2-U	4-U		
Georgia		1-S	1-S		14-U		10-U		
Hawaii					5-U				
Idaho	1-S				17-U		1-S 2-U		
Illinois					1-S 2-U	2-S			
Indiana					27-U	1-U			
Iowa					21-U	1-S	1-S 3-U		
Kansas					2-U		1-S		
Kentucky	1-S	1-S	1-S		11-U		6-U		
Louisiana					1-S 1-U		1-S		
Maine					2-S 2-U		2-S		
Maryland	1-S	1-S		2-S		1-S	2-S		
Massachusetts	1-S	1-S			24-U		4-U		

Michigan						2-S		
Minnesota					70-U	5-U	4-S 4-U	
Mississippi					6-U		1-S 3-U	
Missouri	1-S		1-S		19-U		1-S 2-U	
Montana	1-S	1-S			6-U	1-U	1-S	1-S
Nebraska					3-U		1-S	
Nevada				1-S	5-U			
New Hampshire					15-U	2-U	1-S 1-U	
New Jersey					7-S 1-U		1-S	
New Mexico	1-S	1-S			5-U			1-S
New York	1-S	1-S		1-S	4-S 6-U	2-S	2-S	
North Carolina			1-S		1-S 4-U		1-S 9-U	
North Dakota						1-S	2-U	
Ohio					7-U	1-S		
Oklahoma	1-S				1-U		3-S 1-U	
Oregon	1-S	1-S			5-S 35-U	2-U	1-S 13-U	
Pennsylvania						4-S	2-S 1-U	
Rhode Island					5-U		1-U	
South Carolina			2-S				1-S 6-U	
South Dakota					2-U		2-U	
Tennessee					21-U		2-S 24-U	
Texas			1-S		35-U		1-S 5-U	
Utah					9-U		2-S	
Vermont			1-S		9-S 3-U		1-S 1-U	
Virginia			1-S	1-S	1-U		1-U	
Washington					65-U	1-S 3-U	10-U	
West Virginia			1-S			1-S		
Wisconsin					4-S 14-U		1-S 2-U	
Wyoming					3-U	1-S	1-S 1-U	
District of Columbia								
Palau								
Guam								
Puerto Rico								
Virgin Islands					1-S	1-S		
N. Mariana Islands								
American Samoa								
Totals	13	11	11	5	623	44	193	2
F = Federal S = State/Territory L = Local U = Utility								

Appendix D

Consumer resources for information on Energy Efficiency and Conservation

The channels for locating information abound. Listed below is a compilation of the various resources for energy efficiency and conservation information:

State Resources:		Description
General energy information	www.ctenergyinfo.com	Developed by the DPUC in conjunction with the Institute for Sustainable Energy to assist consumers in location information about energy-related matters
Energy Efficiency	www.ctsavesenergy.org	Energy Conservation Management Board website
	www.smartlivingcatalog.com	Enables CL&P and UI customers to shop online for ENERGY STAR products.
	www.chif.org	Energy Conservation Loan Program website
	www.ctgreenschools.org	College and university initiative to make campus facilities more energy efficient and environmentally friendly with the assistance of the Institute for Sustainable Energy and the Department of Environmental Protection.
Clean Energy	www.ctcleanenergy.com	Website for the Connecticut Clean Energy Fund
	www.ctsolarlease.com	Solar leasing plan for moderate to low income households
Energy Education	www.sustainenergy.org	The Institute for Sustainable Energy website provides information on the core activities of the Institute
	www.ctenergyeducation.com	A curriculum resource for educators of high school students
	www.coolitchallenge.org	A competition for middle and high school students where students learn about the science of climate change and then create local solutions. This program is run by the Institute for Sustainable Energy and funded primarily by the Tremaine Foundation.
	www.wattsnewct.ct.gov	An education campaign created by the legislature and managed by the DPUC to inform electric customers about electric competition
	www.eesmarts.com	A CEEF initiative providing educational materials for teachers aimed at elementary and middle school children
	http://conservationeducation.org	Connecticut League of Conservation Voters Energy Fund
	http://onethingct.com	Governor's initiative to educate consumers on conservation
	1-877-WISE-USE	To get answers to energy related questions.
	2-1-1 (Infoline)	An online database that can provide information on energy and conservation programs, utility payment programs, and shut-offs and winter protection.
Low-income energy assistance	www.ct.gov/dss	Energy and heating assistance for low-income renters and homeowners
	www.operationfuel.org	Non profit providing fuel assistance to Connecticut residents.
Biofuel Resource	www.ctbiofuelinfo.org	A mechanism to help create a market in Connecticut for the use of biofuels by connecting the people who have the waste with processing facilities. The site is still under construction but is a 2008 initiative of the ISE with the help of a grant from the legislature.
State energy policy	www.ctenergy.org	Connecticut Energy Advisory Board
	www.ct.gov/opm	Office of Policy and Management: Energy Management Unit which produces the "State of Energy", a periodic electronic newsletter on energy issues

National Resources:		
Clean Energy	www.dsireusa.org	Database of state incentives for renewable energy
Energy Efficiency	www.aceee.org	American Council for an Energy Efficient Economy
Energy Education	www.eia.gov	Federal Energy Information Administration – official energy statistics

Appendix E

Connecticut Energy Efficiency Fund: Customers Served

Residential. The total customers served since 2004 are:

- Low –income (WRAP/UI Helps) – 69,987
- Home Energy Solutions – 32,284
- Residential New Construction – 5,934

Figure III-10: Low- Income (WRAP/UI Helps)

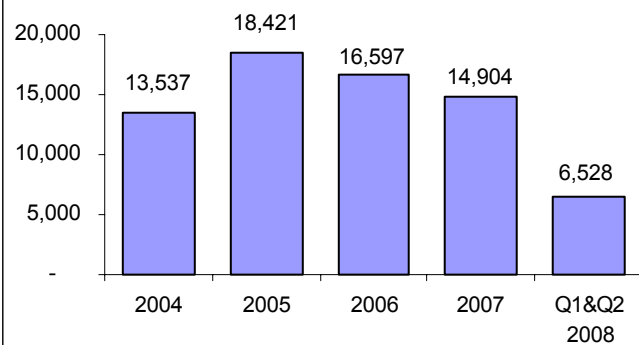


Figure III-9: Home Energy Solutions

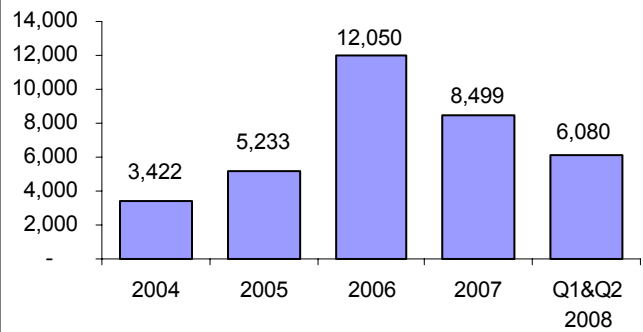
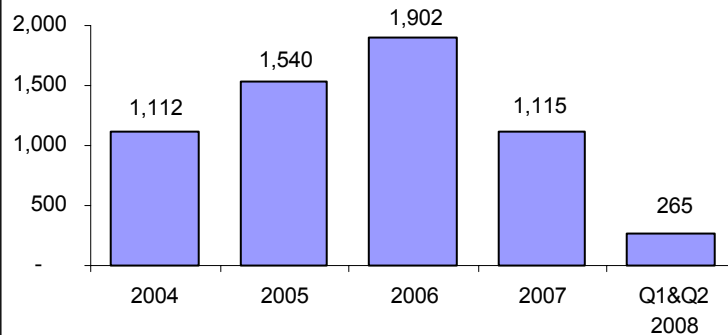


Figure III-8: Residential New Construction



Commercial and Industrial. The total customers served since 2004 are:

- Energy Conscious Blueprint and Energy Opportunities – 5,646
- Operation & Maintenance – 148
- Small Business – 7,979

Figure: III-11: C&I Customers Served (ECB & EO)

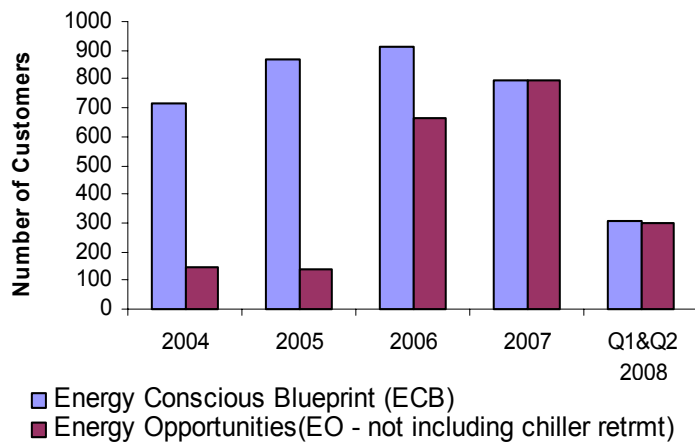


Figure III-12: C&I Customers Served (O&M)

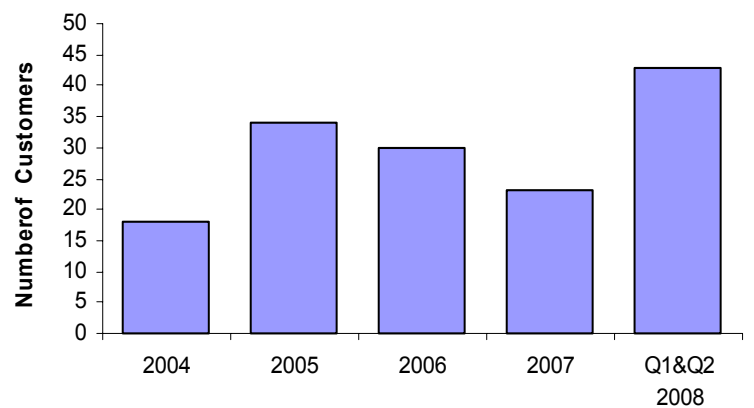
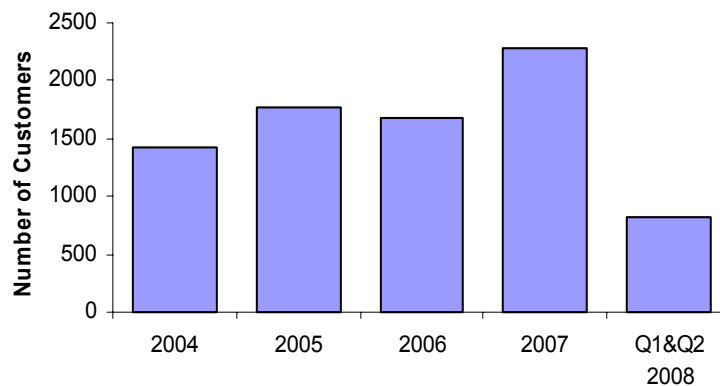


Figure III-13: C&I Customers Served (Small Business)



Appendix F

WRAP MEASURE DESCRIPTION

The table below shows the Measures that are used in the Sub-Programs.

<u>MEASURE</u>		<u>SUB-PROGRAM</u>			
		<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>
1.	Set water heater thermostat at 120°F	X	X		
1b.	Install waterbed covers	X	X		X
2b.	Install CFL-15 Watt	X	X	X	X
2c.	Install CFL-20 Watt	X	X	X	X
2m.	Torchiere lamp replacement	X	X		X
2n.	Small table lamp (22 Watt)	X	X	X	X
2p.	Large table lamp (22 Watt)	X	X	X	X
2*1.	Install CFL (Globe 15-Watt)	X	X	X	X
2*2.	Install CFL (Recess 15-Watt)	X	X	X	X
2*3.	Install CFL (Three-way)	X	X	X	X
2*4.	Install Outdoor Flood (23-Watt)	X	X	X	X
3.	Install electric outlet/switch gasket	X	X		
4.	Install low-flow shower head	X	X	X	X
5.	Wrap water heater to R-6	X	X		
6.	Install low-flow faucet aerator	X	X	X	X
7.	Install door sweep	X	X	X	
8.	Caulk window	X	X	X	
9.	Caulk exterior door	X	X	X	
10.	Weather strip window	X	X	X	
11.	Weather strip door	X	X	X	
12.	Insulate attic hatchway	X	X		
13.	Interior heat leak sealing (caulk)	X	X		
14.	Install basement window coverings	X	X		

MEASURE		SUB-PROGRAM			
		1	2	3	4
15.	Insulate heating ducts to R-6	X	X		
16.	Insulate vertical attic door	X	X		
17a.	Install 10' pipe insulation to R-3.2 on DHW pipes only	X	X		
18.	Seal sill plate or baseboard (interior)	X	X		
19.	Insulate pull-down stairs	X	X		
21.	Minor carpentry		X		
25a.	Increase non-gas ceiling insulation level to R-38 (when existing is at or below R-11)	X	X	X	
25b.	Increase gas ceiling insulation level to R-38 (when existing is at or below R-11, YGS & CNG Only)	X	X	X	
26.	Replace broken window/door glass	X	X		
27.	Window glazing (5 maximum)	X	X		
27b.	Window locks-Top	X	X		
27c.	Window locks-Side	X	X		
28a.	Clean, tune, and test	X	X		
28b.	Heating system repair	X	X		
29.	Burner replacement (Steady state efficiency level at or below 75 percent)	X	X		
30.	Furnace boiler replacement	X	X		
30a.	E-Star furnace replacement	X	X		
31.	Increase sidewall insulation R-13	X	X	X	
32.	Minor plumbing		X	X	X
33.	Miscellaneous		X		
40.	Replacement window units		X	X	

Sub-Program Descriptions:

1 = Leveraged Funding to DSS Weatherization program.

2 = Most comprehensive measures of the WRAP program.

3 = Less comprehensive -- primarily lighting measures. Program concentration is multi-family complexes.

4 = Least comprehensive -- primarily neighborhood canvass. Provides information, performs some minor measures, including lighting.

Source: CL&P Weatherization Residential Assistance Program

Appendix G

2008/2009 Health and Human Services Poverty Guidelines

For all states (except Alaska and Hawaii) and for the District of Columbia

Size of family unit	100 Percent of Poverty	110 Percent of Poverty	125 Percent of Poverty	150 Percent of Poverty	175 Percent of Poverty	185 Percent of Poverty	200 Percent of Poverty
1	\$10,400	\$11,440	\$13,000	\$15,600	\$18,200	\$19,240	\$20,800
2	\$14,000	\$15,400	\$17,500	\$21,000	\$24,500	\$25,900	\$28,000
3	\$17,600	\$19,360	\$22,000	\$26,400	\$30,800	\$32,560	\$35,200
4	\$21,200	\$23,320	\$26,500	\$31,800	\$37,100	\$39,220	\$42,400
5	\$24,800	\$27,280	\$31,000	\$37,200	\$43,400	\$45,880	\$49,600
6	\$28,400	\$31,240	\$35,500	\$42,600	\$49,700	\$52,540	\$56,800
7	\$32,000	\$35,200	\$40,000	\$48,000	\$56,000	\$59,200	\$64,000
8	\$35,600	\$39,160	\$44,500	\$53,400	\$62,300	\$65,860	\$71,200

For family units with more than 8 members, add \$3,600 for each additional person at 100% of poverty; \$3,960 at 110 %; \$4,500 at 125%; \$5,400 at 150%; \$6,300 at 175%; \$6,660 at 185% and \$7,200 at 200% of poverty.

Note: For optional use in FFY 2008 and mandatory use in FFY 2009